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Ontario Economic Review

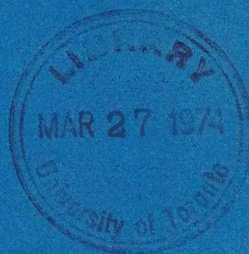
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Ministry of Treasury, Economics and Intergovernmental Affairs

Hon. John White,
Minister of Treasury, Economics and Intergovernmental Affairs
H. Ian Macdonald, Deputy Minister



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The Oil Crisis and World Trade

Zygmunt Betanski, *Economist*
Economic Analysis Branch

Selected Economic Indicators

10

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and Intergovernmental Affairs*

H. Ian Macdonald
Deputy Minister

The *Ontario Economic Review* is prepared and edited bimonthly in the Economic Analysis Branch of the Office of Economic Policy, Ministry of Treasury, Economics and Intergovernmental Affairs. The review presents articles of interest as well as current information on economic activity in Ontario. Signed articles reflect the opinions of their authors and do not necessarily represent the views of the Ministry.

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About the Review

The feature article for the January/February edition of the *Ontario Economic Review* is devoted to the problems of the current world shortage of oil. It attempts to define the nature of the energy crisis, its causes, and implications for world trade, particularly with respect to the international monetary situation.

According to the article, increases in the world price of oil will have a profound impact on the balance-of-payments positions of both the oil-exporting and oil-importing countries, resulting in a redistribution of income on a global scale. Most of the Western developed nations, where per capita energy consumption is high, face a severe payments crisis. There is also danger of disintegration in world trade through the spread of bilateralism.

Canada's potential self-sufficiency in oil makes it less vulnerable to the oil price escalation, at least in the short run. But the long-term implications of world energy shortage are serious for every country.

The article was prepared by Dr. Z. Betanski, in the Economic Analysis Branch, Office of Economic Policy, Ministry of Treasury, Economics and Intergovernmental Affairs.

Indicator Charts, Pages 10-12

Fluctuations in aggregate economic activity — commonly used to define business cycles — do not necessarily correspond with fluctuations in the individual activities which make up the aggregate. Instead different indicators of economic activity may vary with respect to both their rates of growth and the timing of their peaks and troughs: some may grow more rapidly than others, some change direction sooner.

Those activities which tend to assume a direction in advance of the aggregate — because they relate to future rather than present production — are referred to as leading indicators, and are widely used to anticipate the short-run future course of the overall economy. The charts on pages 10, 11 and 12 in the *Ontario Economic Review* present a number of these leading indicators, as well as several which are coincidental to or lag behind the aggregate, to provide for the reader an opportunity to make such an evaluation.

While comparisons of the timing and direction of general changes in the various indicators can readily be made, great care must be exercised in making such a comparison of the amplitude of fluctuations. Of the three vertical scales used — 'A' (arithmetic) and 'L1' and 'L2' (logarithmic scales with one and two cycles respectively over a given vertical distance) — only the logarithmic scales can be used to compare relative changes in different indicators. *And this applies only when all series being compared are on the same logarithmic scale.* In such a situation all parallel lines represent equal rates of growth, the exact rate of growth being determined by the slope of the line.

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The Oil Crisis and World Trade

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conomic Analysis Branch

WIDESPREAD CONCERN

How will the energy crisis affect world trade? What will its implications be for the world economy and for individual countries? Can economic growth be sustained? Will the standard of living not suffer? Will there be an economic depression? What implications will the energy shortage have for our way of life?

These are the questions that are being asked not only by economists, businessmen, and politicians, but by millions of ordinary people around the globe. And they ask these questions with apprehension because almost everyone is bound to be affected.

How has it come to a crisis at a time when world trade was flourishing and the economies of all the major countries were in a state of boom? What is the nature of the energy shortage and how can it be overcome?

And to these questions another is added: Are we confronted only with a shortage of fuels or with a shortage of many other raw materials and food as well?

PETROLEUM IN THE POSTWAR ERA

Ever since World War II, petroleum has been the wonder fuel of the world economy. It has

been propelling automobiles, ships, and planes. It has been heating homes and factories, moving construction and agricultural machinery, serving as the most important raw material for the chemical industry.

Found in what were initially considered large quantities, it was cheap in production, easy to handle, and extremely versatile in uses. In North America, the homeland of the automobile, it created, in fact, a new civilization, not only by boosting productivity in manufacturing and agriculture, but by spreading urban development thinly over vast areas of the continent linked together with a giant network of roads and superhighways.

The American pattern of economic development did not fail to affect other nations, not only in the West but also in the East. The happy combination of technology and the liquid, inexpensive fuel created a highly productive society whose material well-being rose from year to year. While Americanization spread, other countries also became accustomed to using oil, as well as natural gas, with not much foresight.

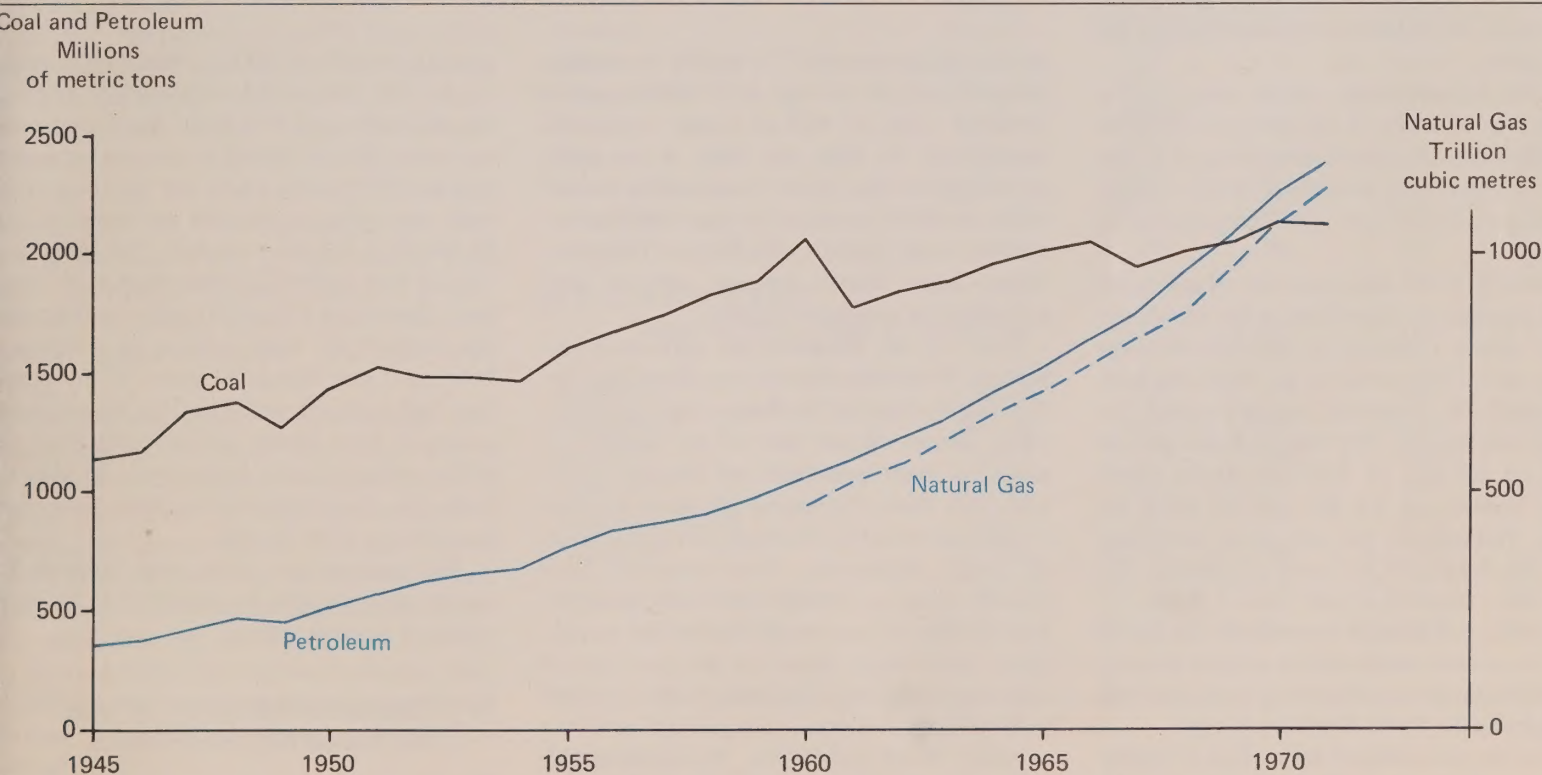
To cope with growing demand for the liquid fuel, oil companies all over the world increased their output almost uninterruptedly, raising total world petroleum production from 351

million metric tons in 1945 to 2.4 billion tons in 1971. In the last 20 years, crude oil production in the world grew at a compound annual rate of about 7.8 per cent, which in itself does not tell us much unless we realize that 7.8 per cent of world petroleum output at the 1970 or 1971 level means an annual production increment of approximately 180 million tons. This is more than the current annual output of Kuwait, one of the world's largest oil producers.

While natural gas was also produced in steadily increasing quantities, the output of coal in Western countries stagnated. Chart 1 illustrates the changes that occurred in world output of the three basic fuels in the postwar period.

The 88 per cent increase in world output of coal between 1945 and 1971 is almost exclusively attributable to production increases in the U.S.S.R., China, Poland, Australia, and South Africa. In the United States, the annual coal output in the last ten years levelled off at approximately 500 million tons, some 15 per cent below the production levels reached during World War II. But in Western Europe, coal production suffered a marked decline. Between 1955, when output levels were still relatively high, and 1971, coal production went down by

Chart 1 — World Production of Coal, Petroleum, and Natural Gas, 1945-1971



Source: UN, Statistical Yearbook.

35 per cent in Britain, 40 per cent in France, and 16 per cent in Germany.

Were it not for governmental support policy, the West European coal industry would have declined even faster. It was non-competitive with the cheap petroleum and natural gas, and Western Europe, like Japan, the United States, and Canada, and much of the rest of the world, became unilaterally dependent on liquid and gaseous fuels. The trend away from coal was basically market-induced, but environmental considerations incorporated into governmental policies also helped to speed up the process of conversion to oil and gas in industry, households, and transportation.

III — THE PROBLEM OF CRUDE OIL SUPPLY

From today's historical perspective, there was a fair amount of shortsightedness in the world's postwar energy policies which took the cheapness of petroleum for granted and which, in a considerable degree, ignored the problem of long-term availability of the various fuel materials extracted from the ground.

As shown in Table I, the world's reserves of coal and lignite are sufficiently large to last two or three thousand years at current rates of exploitation, or at least one thousand years at doubled rates of output. But the reserve life of world crude petroleum deposits has shrunk, according to 1971 estimates, to a frighteningly short period of 32 years, and that of natural gas to 44 years.

In the United States, where almost half a billion tons of crude oil are pumped out of the ground every year, reserves are estimated to last only 11 years. The reserve-life index of U.S. natural gas deposits has been estimated at 12 years.

Naturally, while the search for oil and gas in North America and elsewhere in the world continues, reserve estimates are adjusted. Substantial gas and oil discoveries in the North Sea have brightened the long-term energy outlook for Britain and Norway. The United States pins its hopes on gas and oil from the Alaska North Slope; Canada, on its gas and oil from the Arctic. Preparations for extracting petroleum from the Athabasca tar sands in Alberta, and from shale deposits in the United States are under way, and there is hope that in five to ten years from now, crude oil from these deposits will start to play an increasingly important role in supplying the North American market.

However, processing of tar sands is an expensive proposition. According to estimates, the cost of a plant producing 100,000 barrels of oil

Table I — Reserve-Life Index of Mineral Fuels, World and Selected Countries, 1971

Country	Reserve Life* — Years				
	Coal	Lignite and Brown Coal	Crude Petroleum	Natural Gas	Uranium U ₃ O ₈
WORLD	3,127	2,534	32	44	34
United States	2,187	69,904x	11	12	20
Canada	4,443x	8,049x	17	22	47
Germany (F.R.)	631	593	..	25	..
France	85	..	..	28	28
United Kingdom	105	..	x	61	..
Netherlands	663	..	..	57	..
Indonesia	..	..	33	..	..
Iran	..	..	37	236	..
Iraq	..	..	47	..	..
Kuwait	..	..	71	254	..
Libya	..	..	28	x	..
Saudi Arabia	..	..	84	x	..
Venezuela	..	..	11	x	..
China	2,592	..	..	..	..
U.S.S.R.	9,337	9,368	22	85	..

*Total reserves divided by current annual output.

.. Reserves insignificant.

x Output small or insignificant in relation to reserves.

Source: UN, Statistical Yearbook, 1972.

per day (approximately 5.2 million metric tons per year) may be as high as \$1 billion and its operating costs, as well as energy input, will undoubtedly be high too. Also, it has never been suggested that either Canada or the United States would be prepared to share oil from tar sands or shale deposits with Western Europe or Japan, unless North America achieves self-sufficiency in petroleum supply.

Most of the industrialized nations of the Western World have thus become dependent for their oil supplies on the Persian Gulf countries, where almost 70 per cent of the world's reserves of crude petroleum are situated. However, even there, the reserve life of oil deposits is counted in tens of years and not in hundreds of years. Apparently, these countries have recently come to the conclusion that the depletion of their oil reserves in one or two generations would open them to the prospect of returning to animal husbandry after the oil wells run dry.

Under these conditions, the increases in posted or tax-reference prices for crude oil, as they were imposed by the oil-producing coun-

tries at the end of 1973, do not have as much to do with the Arab-Israeli conflict as many people might tend to believe. Most commentators agree that the cheap energy era has ended, and that petroleum prices will continue to be high even after a peaceful settlement in the Middle East has been reached. The prominent role of Iran in OPEC's (Organization of Petroleum Exporting Countries) price policies and the support for these policies by Venezuela, Indonesia, and Nigeria all point to the simple fact that most (if not all) of the oil-producing countries have finally realized that they can safely extract a much higher price for their oil from the industrialized countries than they were able to do in the past.

The implications of the new situation for world trade can only be compared to an earthquake on a global scale.

IV — THE GOOD FORTUNES OF THE OIL-EXPORTING COUNTRIES

The United States is the world's largest crude oil producer, accounting for almost 20 per cent

world output. However, the United States consumes more petroleum and petroleum products than it produces. On a net basis, it is a big importer of oil.

The share of the U.S.S.R. in world petroleum output is over 15 per cent, and the country is a net exporter of oil. The bulk of Soviet deliveries, however, goes to Eastern Europe. Domestic Soviet requirements have so been putting pressure on supplies. As a result, only a relatively small quantity of crude oil — some 100 million tons — is expected to be available for delivery to Western markets in the foreseeable future.

The Persian Gulf and North African countries, together with Venezuela, Nigeria, and Indonesia, account for approximately 57 per cent of world oil production, but supply more than 90 per cent of the crude petroleum that enters international markets. As a consequence, these countries have a far vaster influence on international crude oil prices than the United States or the U.S.S.R., although the latter are the world's two largest oil producers.

The level of international crude oil prices is now controlled through the mechanism of posted or tax-reference prices, which are used as a basis for calculating taxes and royalties paid to governments by the oil companies. The actual market price for crude has generally been lower than the posted price, although recently there have also been sales of oil at prices substantially above the tax-reference price.

In 1971, the posted price of the Persian Gulf crude was \$1.80¹ per barrel. That price was raised in December 1973 to \$5.10; shortly thereafter it was increased to \$11.65 for deliveries starting in January 1974. Venezuela's tax-reference price for crude was \$3.11 per barrel in early 1973, \$7.74 at the end of that year, and as much as \$14.08 for deliveries in early 1974. Indonesia, Nigeria, Gabon, Ecuador, Bolivia, and some other minor producers quickly aligned themselves with the price trends.

Nor is the end of price increases in sight. The Organization of Petroleum Exporting Countries has been non-committal on the maintenance of present price levels for more than a couple of months, and already sales at an actual price of \$16 or even \$20 per barrel are reported to have taken place. The situation is in a state of flux and predictions are difficult. It can, however, be assumed with a fair degree of certainty that, in 1974, the bulk of international oil sales will be made at market prices ranging from \$10 to \$15 per barrel.

If output levels of crude in 1974 are the same as they were in 1972, the sales value of

petroleum produced in the oil-exporting countries will be between \$102 billion and \$153 billion. Assuming that 10 per cent of the output is consumed domestically by the producing countries, the quantities of oil that come on the international market should earn \$70 billion to \$120 billion more than they earned at the old price levels in 1973. What the share of individual oil-exporting countries will be in the new income flow is illustrated in Table II.

The awesome size of the revenues from oil can only be imagined if we recall that the total value of world exports was \$310 billion in 1971 and \$366 billion in 1972.

Redistribution of income on a global scale will give the oil-exporting countries wealth and economic prosperity beyond anything they have experienced in the past. Since a number of

these are developing countries with relatively low Gross National Product per capita levels, such as Iran, Iraq, Algeria, Nigeria, and Indonesia, the oil bonanza, by raising the value of their exports sharply, should contribute to their fast economic growth and, hopefully, rising standards of living for their populations.

Some smaller oil-exporting countries, such as Ecuador, Bolivia, Colombia, Malaysia, and Gabon, will also benefit from the oil price increases, so that at least a certain number of developing countries in the world should be on the winning side of the crisis. Some others like Mexico, Argentina, Peru, and Burma are almost self-sufficient in oil, and the oil price escalation should have no major impact on them.

With most of the oil coming from the Persian Gulf area and North Africa, the Arab

Table II — Sales Value of Crude Petroleum Output of the Oil-Exporting Countries, 1972
(calculated at various price levels)

Country	Oil Output ¹		Value of output — in millions of U.S. dollars		
	Thousand Metric Tons	Million Barrels	at \$2 per bbl.	at \$10 per bbl.	at \$15 per bbl.
Algeria	50,052	384	768	3,840	5,760
Bahrein ²	3,761	28	56	280	420
Iran	248,268	1,837	3,674	18,370	27,555
Iraq ²	79,404	595	1,190	5,950	8,925
Kuwait	151,152	1,098	2,196	10,980	16,470
Libya	106,272	805	1,610	8,050	12,075
Neutral Zone ²	28,968	198	396	1,980	2,970
Oman	13,944	102	204	1,020	1,530
Qatar	23,256	178	356	1,780	2,670
Saudi Arabia	285,912	2,098	4,196	20,980	31,470
Abu Dhabi ²	45,636	346	692	3,460	5,190
Dubai ²	6,095	45	90	450	675
TOTAL: MIDDLE EAST AND NORTH AFRICA	1,042,720	7,714	15,428	77,140	115,710
Ecuador	3,835	29	58	290	435
Indonesia	63,336	463	926	4,630	6,945
Malaysia	4,418	34	68	340	510
Algeria	89,796	664	1,328	6,640	9,960
Trinidad, Tobago	6,672	47	94	470	705
Venezuela	169,008	1,251	2,502	12,510	18,765
TOTAL: OIL EXPORTING COUNTRIES	1,379,795	10,202	20,404	102,020	153,030

¹Data in barrels are derived by dividing output in metric tons by crude oil's specific gravity and then multiplying the result by 6.2898.

²1971 Output.

Source: UN, Monthly Bulletin of Statistics, for data on output.

countries will now have emerged as the single most powerful group among petroleum-exporting countries. And the oil revenues that they are expected to cash in are of such an astronomical magnitude as to present a huge problem not only for the industrialized world that has to pay the bulk of the oil bill, but for the Arab countries themselves. Certainly, even for the sake of their own political security, Saudi Arabia and Kuwait can be expected to share their wealth with the poorer but more populous Arab nations. Some Islamic countries of Black Africa may also benefit, and Arab leaders have already indicated that developing countries in general will head their list for financial aid and investment.

However, even this wide distribution of income from oil will not totally absorb the Arab countries' foreign exchange earnings, and their huge payments surpluses with Western industrialized countries will have already become the main problem area of the world monetary system. Under these circumstances, it can easily be predicted that the new economic and political influence of the Arab nations will soon find expression in their participation in the world's most influential councils deciding on world monetary reform and world trade.

V – THE OIL BILL OF WESTERN INDUSTRIALIZED NATIONS

An example of what could happen to any highly industrialized society when its energy supplies are drastically reduced or endangered is provided by the current situation in Britain: unheated or inadequately heated homes, partially paralyzed transportation, production cuts in industry, unemployment, drop in Gross National Product, lower living standards, economic decline.

Nor can it be envisaged that substantial cuts in the supply of petroleum could easily be offset by rapid increases in the supply of coal or electricity from hydro or nuclear power stations, even if such increases were possible, which they are not.

The technical characteristics of energy consumption provide only for a limited substitutability of the various forms of energy in the short run. The world might need ten, twenty, or thirty years to substitute the electric engine for the internal combustion engine. It might need five to ten years to convert oil-burning residential heating systems to electricity; and twenty, thirty, or forty years to expand urban rapid transit systems to replace the automobile in Western cities.

In the short run, substitutability of the various forms of energy is limited; accordingly, demand for petroleum is largely inelastic. This is obviously the reason why no slump in world petroleum sales is predicted, despite the five-fold increase in crude oil prices.

If the quantities of petroleum delivered in 1974 are the same as those in 1971, the gross bill that the OECD countries will have to pay for crude oil imports will be about \$80 billion at a market price of \$10 per barrel (or about \$11 c.i.f.).² This is roughly \$60 billion more than at the old prices, an amount that has

already been mentioned by John Turner, the Minister of Finance. If, however, the average market price moves up to \$15 per barrel, the OECD oil bill would be a staggering \$113 billion. Table III provides a breakdown of these figures by country and area.

In view of the tension that pervades the world because of the energy crisis, OPEC may well decide that raising the prices to levels higher than they are now would mean adding fuel to the fires already raging. It may, therefore, well be that \$10 per barrel will remain the predominant market price for crude in 1974.

Table III – Crude Petroleum Imports of OECD Countries, 1971
(calculated at various price levels)

Country	Quantity ¹		Value in million U.S. dollars		
	million metric tons	million barrels	at actual c.i.f. prices	at \$11 per bbl. c.i.f.	at \$16 per bbl. c.i.f.
European Area					
Austria	5.0	36.7	107.9	403.7	587.2
Belgium-Lux.	30.6	223.8	652.5	2,461.8	3,580.8
Denmark	10.7	78.3	240.0	861.3	1,252.8
Finland	8.9	65.1	185.1	716.1	1,041.6
France	104.7	765.7	2,165.1	8,422.7	12,251.2
Germany (F.R.)	100.2	732.8	2,205.3	8,060.8	11,724.8
Greece	4.9	35.8	85.3	393.8	572.8
Ireland	3.1	22.7	70.7	249.7	363.2
Italy	115.7	846.2	2,292.4	9,308.2	13,539.2
Netherlands	71.6	523.7	1,549.4	5,760.7	8,379.2
Norway	5.7	41.7	119.7 ²	458.7	667.2
Portugal	4.0	29.3	97.7	322.3	468.8
Spain	35.1	256.7	663.7	2,823.7	4,107.2
Sweden	11.9	87.0	249.6	957.0	1,392.0
Switzerland	5.2	38.0	124.7	418.0	608.0
Turkey	5.5	40.2	95.7 ²	442.2	643.2
United Kingdom	109.7	802.3	2,332.3	8,825.3	12,836.8
TOTAL	632.5	4,626.0	13,237.1	50,886.0	74,016.0
Western Hemisphere					
Canada	34.3	250.9	535.9	2,759.9	4,014.4
U.S.A.	102.4	748.9	1,878.6	8,237.9	11,982.4
TOTAL	136.7	999.8	2,414.5	10,997.8	15,996.8
Australia	10.2	74.6	133.7	820.6	1,193.6
Japan	190.0	1,389.6	3,043.0	15,285.6	22,233.6
OECD TOTAL	969.4	7,090.0	18,828.3	77,990.0	113,440.0

¹Data in millions of barrels are derived by dividing the figures by 0.86 (average specific gravity) and then multiplying the results by 6.2898.

²Estimate.

Source: UN, World Trade Manual, 1971.

OECD, 1971 Oil Statistics, compiled by the Oil Committee.

The extra oil bill of \$60 billion that OECD countries will have to pay in 1974 is a rough figure, based on the assumption that the quantities of oil purchased in 1974 would be the same as those in 1971. The assumption is fairly realistic if account is taken of Arab embargoes, curtailment of supplies, and tendencies, also on the part of Venezuela, to reduce oil output for the purpose of prolonging the life of reserves.

But from that figure of \$60 billion paid to the oil-exporting countries, the part representing profits of oil companies will presumably be repatriated into the OECD area. Voluntarily or involuntarily, the Western oil companies have become OPEC's partners in the recent oil price escalation, and their profits are expected to be enormous. If the profit of oil companies on each barrel of oil shipped in 1974 from the OPEC area is \$2, which is a fair assumption, the aggregate amount of profits made by the oil companies from oil production in OPEC countries, would be \$18 billion. Approximately one-tenth of these profits would come from sales of oil to the developing countries.

Thus, on a net basis, the extra oil bill which OECD countries will have to pay in 1974 is, theoretically at least, \$42 billion — a staggering figure in itself. It compares with OECD's total international monetary reserves of \$143 billion recorded at the end of June 1973. In connection with this, doubts have been raised in prominent Western circles if the world energy crisis can at all be handled within the framework of the present international monetary system without destroying it.

The situation is critical, but not calamitous. It should be recalled that Western governments recently rescinded their undertaking not to sell monetary gold on the free market. If their monetary gold is used for paying their balance-of-payments deficits, it will certainly occur at the free-market price of gold, which is now above \$120 per ounce. The monetary gold in the reserves of OECD countries, now valued at \$39.3 billion at the price of \$42.22 per ounce, is worth almost \$112 billion at the market price of \$120 per ounce. A realistic appraisal of the total monetary reserves of OECD countries must consequently put them at a level of at least \$215 billion.³ Five years would elapse before the Western industrialized countries as a group would deplete their monetary reserves, all other things being equal. But this conclusion does not apply to each individual country. Some of them might be in the midst of a payments crisis in one or two years, especially those who were not sufficiently shrewd to rely

on gold for a substantial part of their monetary reserves.

VI — OIL AND INDIVIDUAL WESTERN COUNTRIES

With the exception of Canada, all OECD countries will now have to pay much higher petroleum bills than in the past.

Canada

Canada's unique position among Western developed nations results from the fact that it is potentially self-sufficient in oil. It now imports crude from overseas to supply Eastern Canadian markets, but it exports roughly the same quantities of oil to the United States from Alberta and Saskatchewan. Unless it wants to subsidize U.S. importers of Canadian crude, it has to charge them the same price as it is being charged for overseas oil delivered to Eastern Canada.

The Canadian balance-of-payments should, therefore, not be adversely affected by the world energy crisis, and its immunity in that area may well contribute to a relative strengthening of the Canadian dollar.

Internally, Canada faces a formidable dilemma in deciding how closely it should align its domestic oil prices with those of the world market. Significantly lower domestic prices would discourage energy conservation, but price alignment would weaken the country's fight against inflation. The outcome of the Canadian debate on that subject may very well be that a relatively small price differential will get governmental support, and a one-price policy for oil products will be adopted for the whole country.

With conventional reserves of oil sufficient only for fifteen years, Canada, like other countries, is under considerable pressure to formulate a viable national energy policy. However, because of its relatively abundant production of hydro-electricity and natural gas, a rather advanced program of expanding nuclear power generation and — last but not least — the yet untapped potential of Alberta's tar sands, Canada stands a fair chance of weathering the current world energy crisis with not too much damage to its economy.

The United States

The U.S. situation is different. In 1971, the United States imported almost 750 million barrels of crude oil at a cost of \$1.9 billion, in addition to some \$1.5 billion worth of petroleum products. The same quantity of crude imported in 1974 at new prices would cost \$8.2

billion, while the expenditure for the 1971 volume of imported refinery products might be as high as \$6.0 billion. This all on the assumption that the quantities imported have not increased. The assumption, however, is not quite correct, as the quantities of imported refinery products are generally known to have increased somewhat in both 1972 and 1973. Thus, the extra bill for imported petroleum and petroleum products in 1974 will be at least \$11 billion, but possibly more.

A burden of that size on the U.S. balance-of-payments would, under different circumstances, have caused a drop in the value of the American dollar on foreign exchange markets. What happened, however, in the course of the crisis in November and December of 1973 was the opposite: a strengthening of the U.S. dollar in terms of other currencies. What is the explanation?

Firstly, it became apparent that the United States, being 85 per cent self-sufficient in energy, and producing about half a billion tons of crude oil per year, is still far less vulnerable to a world shortage of oil, at least in the short run, than Western Europe and Japan. Secondly, news spreading in world financial circles about massive profit accumulation by international oil companies, the majority of which are American-owned, must have led to the conclusion that profits repatriated to the United States will, to a large degree, offset the injurious effects of oil price increases on the U.S. balance-of-payments. The almost incredible thing happened: The world oil crisis, allegedly invoked by the Arabs as retaliation against the United States for its support of Israel, contributed in part to a strengthening of the U.S. dollar.

The long-term effect of world oil shortage on the U.S. balance-of-payments will, however, be very different from the short-term effect. The governments of oil-exporting countries will soon have taken over the greater part of the equity of international oil companies operating within their borders and, as a result, the flow of profits from OPEC countries into the United States will largely dry up. Also, the gap between U.S. petroleum consumption and production is expected to widen enormously and with it, U.S. demand for imported oil.

According to projections of the Joint Congressional Committee on Atomic Energy,⁴ U.S. demand for imported petroleum will be 10.8 million barrels per day (b/d) in 1980 and 14.6 million b/d in 1985; this after account has been taken of the maximum possible development and use of domestic coal, natural gas and oil

(including shale oil), hydroelectric, geothermal, and nuclear power. Since U.S. domestic output of oil has currently been at the level of 10.4 million b/d and is not expected to increase, the dependence of the U.S. economy on imported petroleum is forecast to be over 50 per cent of domestic consumption in 1980, and almost 60 per cent in 1985.

It must immediately be pointed out that it is totally unrealistic to assume that the quantities of petroleum that the United States will need from imports will be available on the international market. Translated into metric equivalents, the U.S. import needs of crude oil would be 540 million tons in 1980, and 730 million tons in 1985, constituting respectively 50 and 70 per cent of the total current petroleum output of the Persian Gulf area and North Africa.

It is, therefore, predictable that the U.S. oil shortage, which has so far only scratched the surface of the country's economy, will become more painful every year. International competition for Persian Gulf oil will also contribute to further price escalation, and it is not totally unrealistic to assume that, by 1985, the price of crude oil might be as high as \$50 a barrel. If the United States then bought some 400 million metric tons per year, it would have to pay for it the astronomical sum of \$145 billion. For the time being, however, the U.S. oil situation is more favourable than that of Western Europe or Japan, and North America as a whole might have been given an historical breathing space of five to ten years that it desperately needs to find solutions for what might turn out to be the biggest economic crisis in world history.

Western Europe⁵

Western Europe depends on outside sources of energy for 58 per cent of its energy consumption. In that respect, it is in a much more vulnerable position than North America, the Soviet Union, and Eastern Europe. In crude petroleum, Western Europe is almost totally dependent on imports. Indigenous production constitutes 3.2 per cent of total West European consumption, and is of some significance only in two producing countries, Austria and Turkey.

If supplies of petroleum from outside sources were cut off and reserves of oil and oil products held by refineries depleted, the West European economy would face paralysis. With the flow of oil maintained by OPEC countries at quadrupled prices, it is facing a payments crisis. The extra bill that Western Europe will have to pay in 1974 for imported petroleum will, in all probability, be as high as \$39 billion. Annual payments deficits of this magnitude are

capable of depleting the present West European currency reserves in less than four years.

Table IV conveys an idea of what the individual countries' capabilities are to finance their extra oil bills from their existing monetary reserves. Some countries such as Denmark, Finland, Sweden, and Britain are in danger of losing their total monetary reserves in one to two years, and they are already in a state of monetary emergency. The position of Germany and Switzerland is less vulnerable because of the huge reserves of gold and foreign exchange which they have accumulated in the past. Also, both the deutschmark and the Swiss franc have recently been used on a large scale as international reserve currencies, which gives Germany and Switzerland a monetary advantage associated with debt financing of imports. Austria, with its locally-significant oil production, will

be less affected too. Other countries' expenditures, due to oil price escalation, are capable of wiping out their monetary reserves in three to four years.

Nor is this the end of the story. In addition to the extra oil bill, West European countries have to cope with the problem of soaring international prices for primary commodities, which constitute about 40 per cent of all their imports. Certainly, the increased cost of energy, fuels, raw materials, and food will work itself through to the export prices of European industrial products. This, however, will by no means be sufficient or fast enough to offset the payments deficits that are expected.

The short- and medium-term problems of financing West European petroleum imports are incredibly difficult. Individual countries will try to solve their balance-of-payments problems by

Table IV – Evaluation of the West European Countries' Capability of Financing Crude Oil Price Increases, 1974

Country	Domestic Energy Production as % of Energy Consumption	Estimate of International Reserves (million U.S. dollars)	Estimate of the Extra Oil Bill	Years Before Monetary Reserves Are Exhausted
Austria	41	4,868	448	10.9
Belgium-Lux.	18	8,619	1,737	5.0
Denmark	0	1,319	1,093	1.2
Finland	6	691	707	1.0
France	27	19,861	6,042	3.3
Germany (F.R.)	55	42,211	7,278	5.8
Greece	30	1,399	420	3.3
Ireland	25	1,077	307	3.5
Italy	18	12,979	5,562	2.3
Netherlands	96	10,469	2,699	3.9
Norway	43	1,661	459	3.6
Portugal	14	4,906	297	16.5
Spain	30	6,827	2,321	2.9
Sweden	13	2,769	1,723	1.6
Switzerland	18	14,690	765	19.2
Turkey	59	2,129	379	5.6
United Kingdom	57	8,725	6,613	1.3
TOTAL	42	145,200	38,850	3.7

Note: The estimate of international monetary reserves is based on official reserves as recorded on June 30, 1973, with adjustments for the value of gold. In official IMF data, gold is calculated at \$42.22 per ounce. In this estimate, the current value of gold is assumed to be triple the official price, i.e., \$126.66 per ounce.

The "extra oil bill" has been calculated on the assumption that the quantities of oil and oil products delivered in 1974 will be the same as in 1971, and that the price increase of crude oil and oil products between 1971 and 1974 is \$8 per barrel.

Source: UN, Statistical Yearbook, 1972.

Monthly Bulletin of Statistics, November 1973.

OECD, Oil Statistics, 1971.

monetary manipulations aimed at lowering the value of their currencies. There is serious doubt, however, whether this is an efficient remedy under the present circumstances.

Accepting Arab investments in West European countries is another way of softening the devastating force of the payments crisis. However, investors from the Middle East have so far shown no particular interest in portfolio or direct investment in foreign industries. They have a strong preference for overseas investments in real estate, and their purchases of urban properties in many European cities have already contributed to skyrocketing real estate prices. There is also serious doubt whether massive transfers of property rights to owners in the Middle East is a proper method of financing gasoline and heating-fuel purchases of West European consumers.

It is difficult to foresee what the responses of the various European countries will be to their oil supply and payments problems. Many will offer bilateral barter agreements to individual oil-producing countries so as to secure oil supplies and to provide for a method of payment for them. Some such agreements have already been concluded for periods extending up to 20 years. It is not difficult to predict that once substantial volumes of oil are earmarked for individual importing countries, the momentum towards barter agreements will gain force, undermining the existence of a free world market for oil.

The implications of such probable developments for European economic and political unity are incalculable. The pursuit of national selfishness by individual countries could wreck the whole European movement. But the possibility cannot be discarded either that Europeans will increase their determination to go ahead with plans for complete economic integration and a common European currency. If that happens, the foundation would be laid for a new and probably strong international reserve currency that would give the European countries advantages associated with debt financing of imports. It is not suggested that this would solve the European energy crisis in the long term, but it might give them a prolonged breathing space for finding long-term solutions.

Japan

Japan has to be singled out as the country whose economic life is bound to be affected more severely than that of any other developed nation if fuel supplies from imports are drastically reduced or made more expensive. Only about 14 per cent of the energy consumed in

Japan is produced domestically. Coal output has recently been at the level of about 35 million tons per year, but Japan has practically no indigenous petroleum output. It has, therefore, been the world's largest buyer of crude oil, with imports recently at a level of over 200 million metric tons per year, or about 4 million b/d.

In 1971, Japan's bill for imported crude petroleum was \$3.0 billion. The same quantity of oil purchased now might cost \$12 billion more, which constitutes about 70 per cent of Japan's international monetary reserves at their 1973 level. Since the outbreak of the oil crisis, Japan's monetary reserves have declined rapidly, and the value of the yen in terms of the U.S. dollar fell, between August 1973 and January 1974, by over 13 per cent.

What makes Japan's future outlook even bleaker is the rise of international prices of a broad range of raw materials and food. About 70 per cent of all Japanese imports are made up of primary commodities, and the prices of these doubled between 1968 and 1973, with most of the increase occurring in the last two years. (See Chart 2, page 8.)

Japan will no doubt develop a whole array of bilateral arrangements with other countries aimed at securing long-term delivery of fuels, raw materials, and food. Financial participation in other countries' resource development, and long-term supply contracts, will presumably be the principal methods. Barter agreements, involving the construction by the Japanese of industrial complexes in OPEC countries in exchange for secured, long-term deliveries of oil, could be another device in the arsenal of new trading methods.

But these and other arrangements aimed at long-term stabilization of supplies will, in all probability, not greatly mitigate the injurious effect on the Japanese economy of rising world

commodity prices. The quickly deteriorating terms of trade of industrially developed countries may well be an indication that the world scarcity of fuels, raw materials, and food is now accompanied by a relative abundance of technology. Technological knowledge and industrial experience have been spreading fast in the last two decades, whereas the growth of the resource base has been much slower.

In consequence, the outlook for the Japanese economy is for much slower economic growth, high inflation, and more modest advances in the population's living standards.

VII – OIL AND THE DEVELOPING COUNTRIES

High prices of petroleum and petroleum products will, of course, be a new burden on the balances-of-payments of those developing countries that are net importers of the fuel. Prior to the oil price escalation in late 1973 and early 1974, these countries were spending roughly \$2.5 billion annually for what consisted mainly of refinery products. With prices for these now three times higher, the non-oil developing countries will have to pay, in 1974, an extra \$5 billion, which is more than twice as much as they have been receiving annually in bilateral and multilateral international economic aid.

In connection with this general estimate, a number of alarming statements have been made on the plight of all developing countries due to the energy crisis. The truth is, however, that a number of them will be able to more than offset their extra oil bills with extra revenues from the higher prices now charged for their exports of primary commodities. Table V shows the percentage increases in world prices of some tropical and non-tropical commodities that

Table V – World Export Prices, Selected Commodities
(Percentage Increase)

Commodity	% Increase 3rd Q '73/3rd Q '72	Commodity	% Increase 3rd Q '73/3rd Q '72
Rice	+57	Cotton	+49
Coffee	+20	Sisal	–1
Tea	+11	Jute	+9
Cocoa	+128	Tin Ore	+30
Sugar	+41	Copper Ore	+82
Soybeans	+176	Lead Ore	+51
Copra	+187	Iron Ore	+3
Groundnuts	+33		

Source: UN, United Nations Compiled World Export Price Index of Primary Commodities, 1972-73.

occurred between the third quarters of 1972 and 1973.

It may, therefore, be assumed that the number of developing countries whose economy will be seriously endangered by higher petroleum prices, is much smaller than usually thought. The energy crisis is predominantly the crisis of highly industrialized nations, where per capita petroleum consumption is high.

Nevertheless, some developing countries can be expected to be under great duress, especially those which almost completely rely on imported fuels. Among them, the following can be singled out: Cuba, Jamaica, Kenya, Tanzania, Uruguay, Paraguay, and the Philippines. Some others, which have in recent years enjoyed a degree of prosperity, will also find themselves in difficulties because, following the American and West European pattern, they have relied mainly on the automobile for transportation. South Korea, Thailand, Hong Kong, and the Republic of Viet Nam belong to the category of such nations.

Of course, there is also the group of poor countries whose economic situation is bound to remain very difficult, irrespective of the recent boom in world commodity prices. These countries, such as India, Pakistan, and Bangladesh, Sri Lanka, the republics of Central Africa, will continue to be heavily dependent on generous international aid.

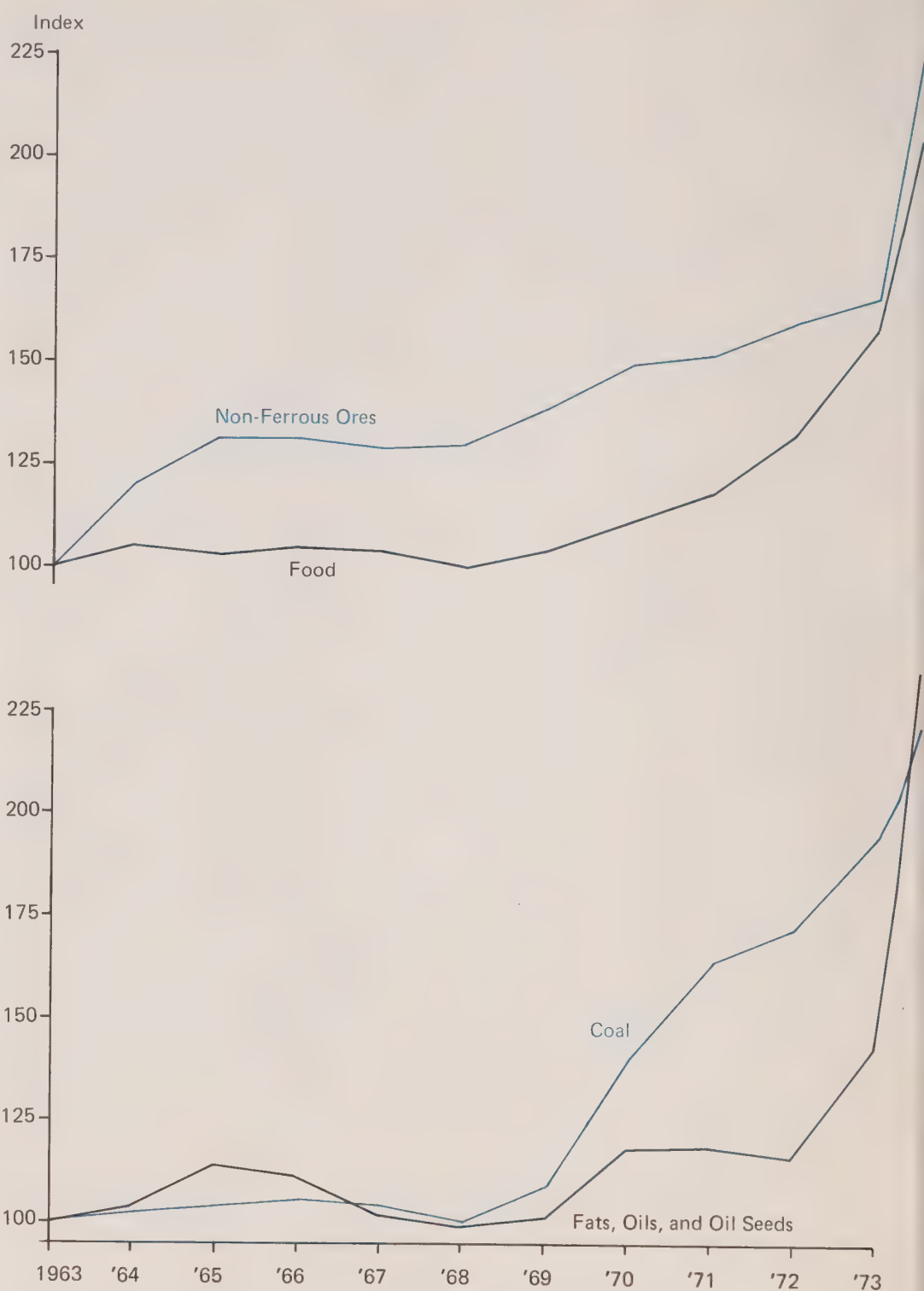
VIII – SUMMARY AND CONCLUSIONS

The energy crisis, the first phase of which we are witnessing today, unfolds against a background of a rapid depletion of the world's conventional reserves of petroleum and natural gas, the two fuels and raw materials upon which the economies of most countries have become heavily dependent. For almost a century, output of oil grew steadily, and as long as oil prices were stable, or in fact declined in terms of prices of other commodities, the world was largely unaware of the danger of possible energy shortages.

Neither the governments nor the private industries of most Western countries have shown sufficient concern about future availability of hydrocarbons from accessible, low-cost deposits.

With most of the world's conventional oil reserves situated in the Middle East and North Africa, the countries of that area have acquired an influence on oil output and oil prices that amounts to monopoly. What the Western World is now confronted with is the prospect of a levelling-off of petroleum supplies from OPEC

Chart 2 – World Export Price Index of Selected Primary Commodities (1963 = 100)



Source: UN, Price Movements of Basic Commodities in International Trade: 1950-1973.
United Nations Compiled World Export Price Index of Primary Commodities, 1970-73.

countries, and a multiple increase in the world price of petroleum, the latter already a fait accompli.

The change in crude oil prices is now bringing about a redistribution of income and wealth

on a global scale in favour of the oil-exporting countries. Accelerated industrialization of these countries and their increased share in international trade will become a permanent feature of the world economy for at least a quarter of a

century. But the new prosperity of the oil-rich countries will be secure only if the world economy and the major industrial nations are not thrown into uncontrollable, chaotic conditions, which might result from sudden and drastic curtailments of their energy supplies.

Already, the balances-of-payments of West European countries, Japan, and many developing countries are dangerously strained, and a total collapse of the world's monetary system is not beyond imagination if crude oil prices were to rise further. There is no doubt that the world economy, and the Western market economies in particular, needed the sufficiently high petroleum prices to encourage conservation of world oil reserves and to eliminate the wasteful uses of the fuel and raw material. But the capacity for adjusting the energy consumption patterns of most economies to high-cost fuels is, in the short term, limited.

The impending balance-of-payments crisis of a large number of developed industrial nations

is now the primary concern, and with it the prospect of a revival of bilateral trading patterns to which individual nations will tend to resort to solve their difficulties. The disintegrating effect on world trade of such bilateral arrangements can hardly be ignored.

The long-term solution of the world's energy crisis will, without any doubt, require an enormous effort aimed at both augmenting energy supplies from all possible sources and adjusting the energy consumption patterns to the amounts and forms of energy that are available.

It should, in that context, be pointed out that, in 10 years from now, and possibly also by the year 2000, the output of solar and geothermal energy will still be very small in relation to total energy consumption. The same applies to petroleum output from shale and possibly tar sands deposits. Nuclear power is the only new form of energy that is expected to constitute a significant supplement to the con-

ventional sources of energy, i.e. coal, natural gas, and oil, in the next 25 years.

However, the development of nuclear power for the generation of electricity has its known limitations and environmental dangers. The reserve-life index of presently-known world uranium resources is 37 years, and only 20 years for U.S. reserves. Much hope is being put into fast breeder reactors that would generate more nuclear fuel than they consume, but the technologies for these are not yet available on an industrial scale.

Massive expansion in the output of coal and lignite will require equally massive investment outlays for mining machinery, means of transportation, and processing equipment. In addition, reclamation problems and availability of water are expected to create greater output constraints than availability of coal reserves itself.

All this indicates that the era of cheap energy has come to an end.

¹ All dollar values referred to in this article are understood to be in U.S. currency.

² The amount of \$80 billion does not include the value of petroleum products imported from outside the OECD area. The United States is by far the largest importer of finished oil products of non-OECD origin. In 1971, the value of U.S. imports of petroleum products was \$1,445 million. At new

price levels for crude, the same quantities may cost between \$4.5-\$6.0 billion. For reasons of simplicity, these amounts have been omitted from calculations relating to OECD countries as a whole. They have, however, enormous weight in the energy account of the United States.

³ Since early Jan. 1974, when the article was written, the price of gold in London has been on the rise.

On Feb. 26, it touched \$184 an ounce before closing at \$175.

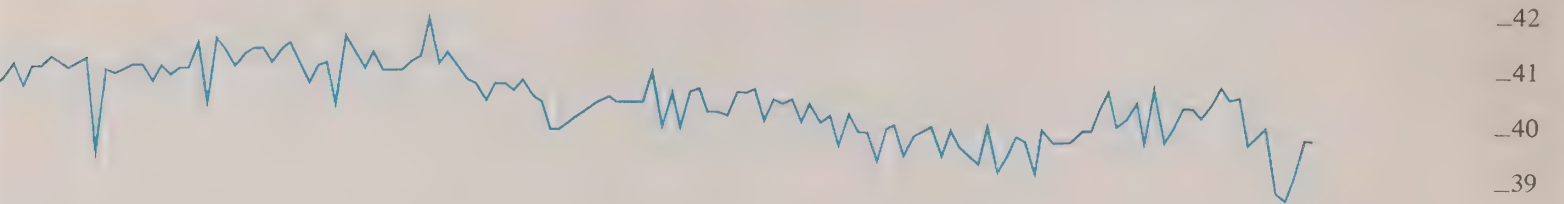
⁴ Jack Bridges, "The National Energy Dilemma, Displayed for Total Viewing", The Conference Board Record, August 1973.

⁵ The term Western Europe, as it is used here, includes all European OECD countries.

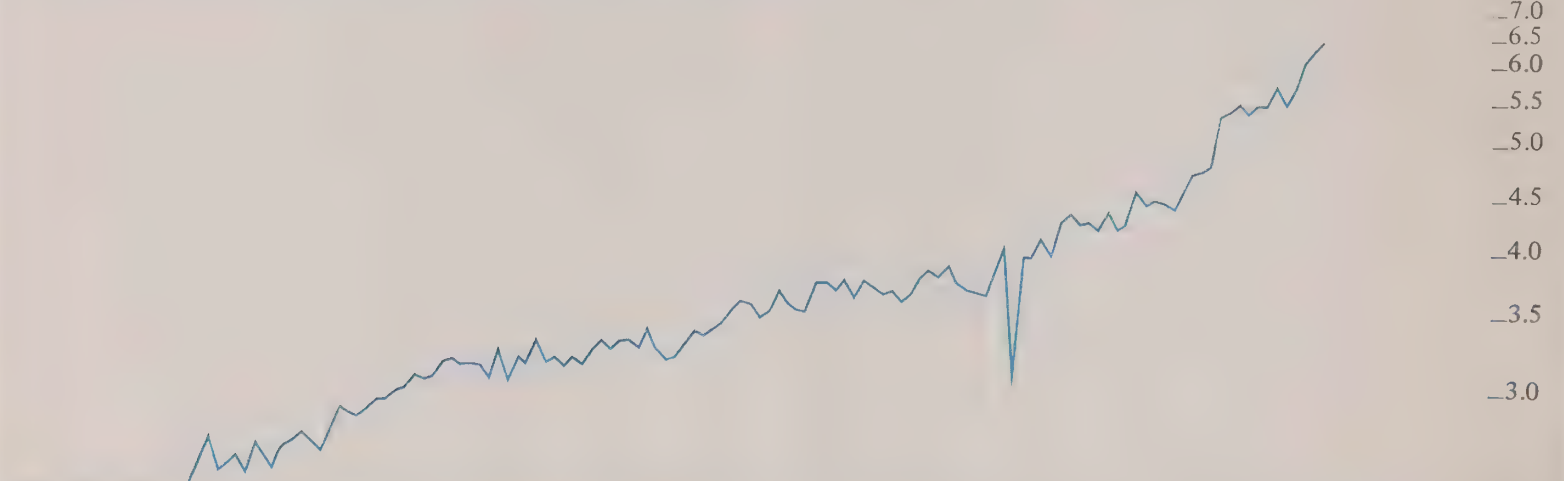
Selected Economic Indicators

Leading Indicators

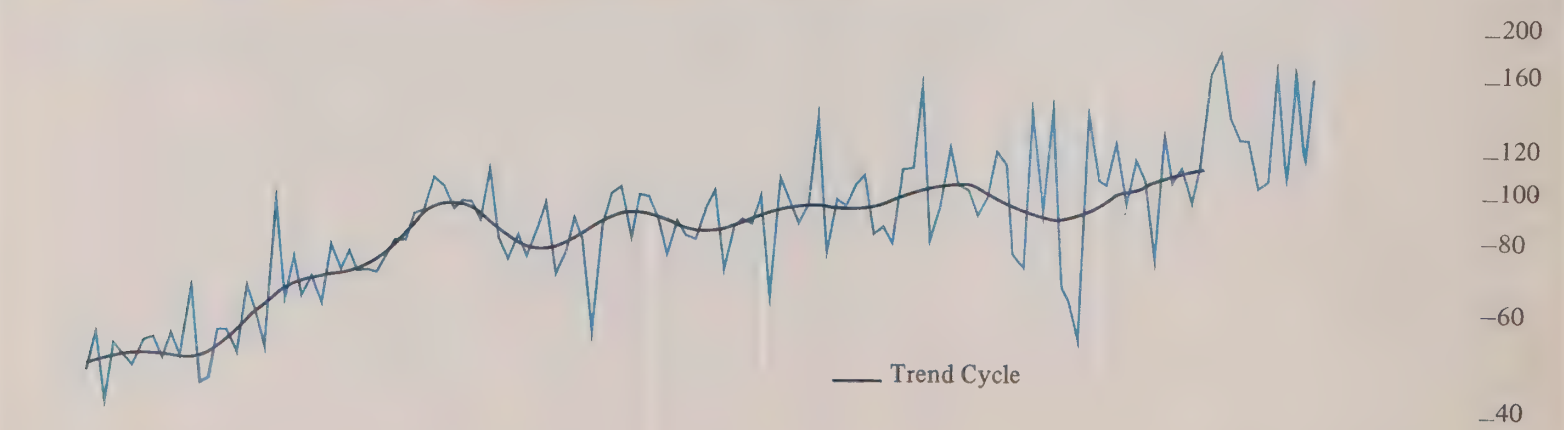
Average Weekly Hours Worked in Manufacturing, Ontario (Seasonally Adjusted)



New Orders in Manufacturing Industries, Canada (Seasonally Adjusted)



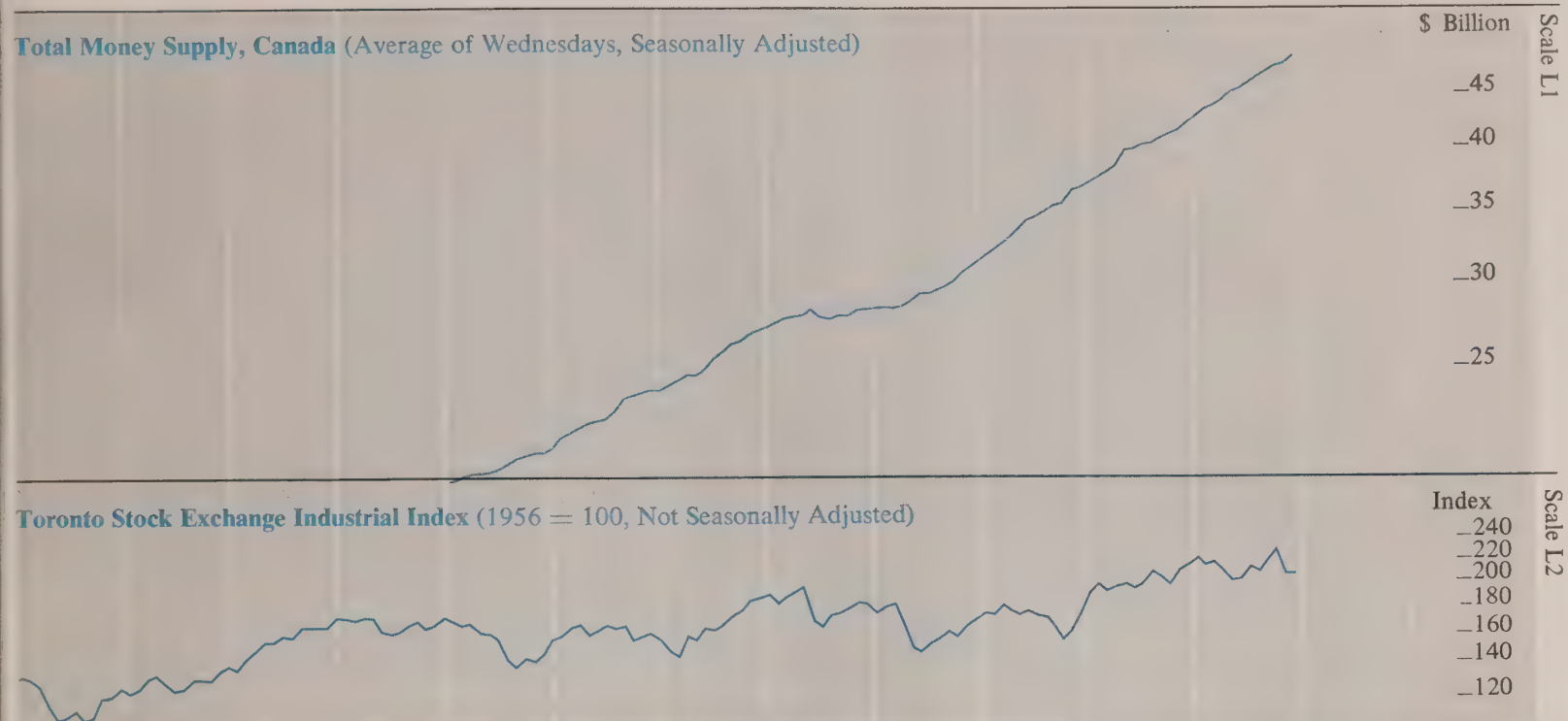
Building Permits Issued in Ontario, Non Residential Construction (Seasonally Adjusted)



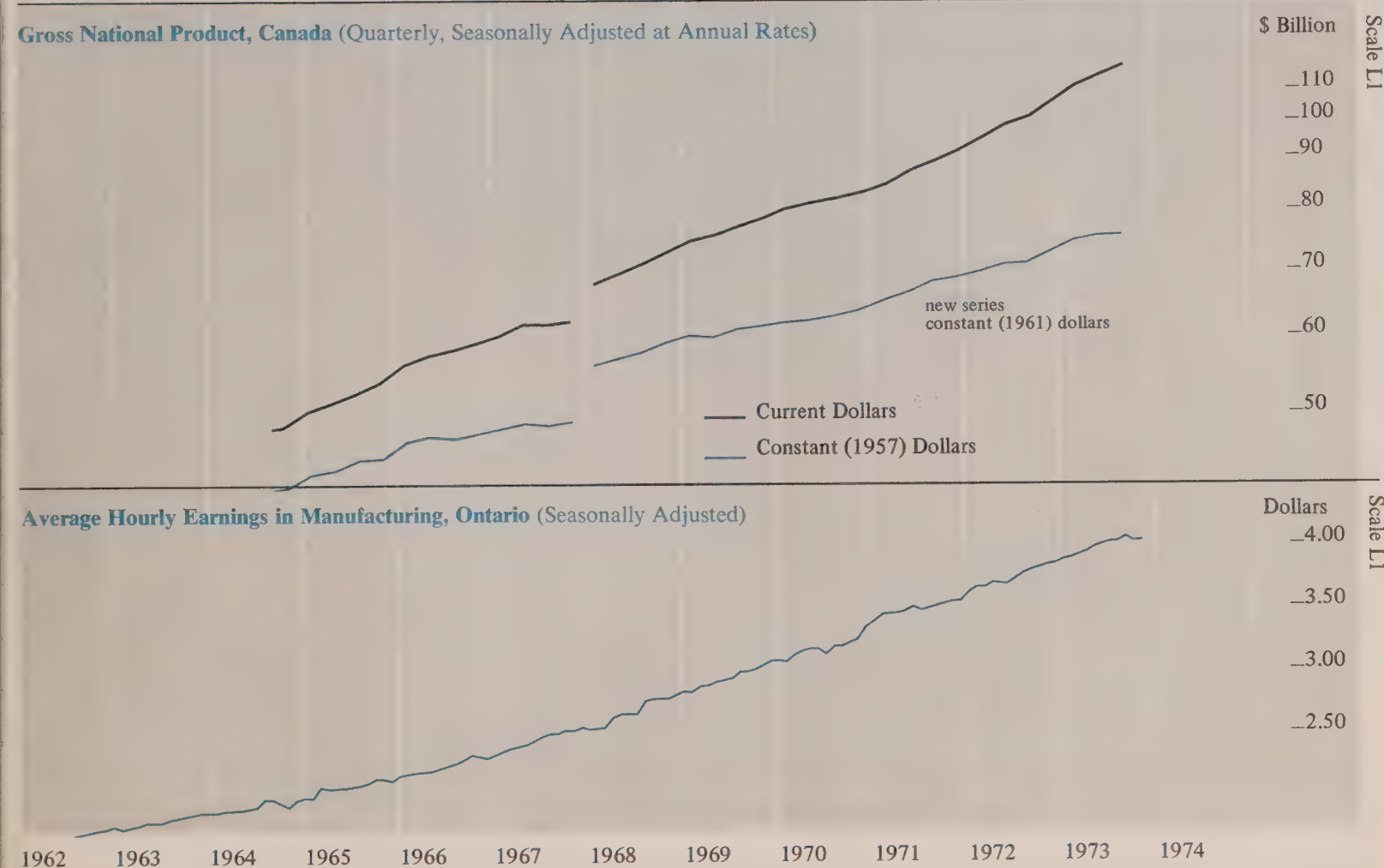
Housing Starts in Centres of 10,000 Population and over, Ontario (Seasonally Adjusted at Annual Rates)



Leading Indicators



Coincidental and Lagging Indicators



Coincidental and Lagging Indicators

Average Yield of 3-Month Treasury Bills, Canada (Last Wednesday of the Month, Not Seasonally Adjusted)

Per Cent
8.0
7.0
6.0
5.0
4.0
3.0
2.0



Employment, Ontario (Seasonally Adjusted)

Million
3.25
3.00
2.75
2.50
2.25



Unemployment Rate, Ontario (Per Cent of Labour Force, Inverted Scale, Seasonally Adjusted)

Per Cent
2.0
3.0
4.0
5.0
6.0



Index of Motor Vehicle Production, Canada (1961 = 100, Seasonally Adjusted)

Index
700
600
500
400
300
200



1962 1963 1964 1965 1966 1967 1968 1969 1970 1971 1972 1973 1974

Economic Indicators

Seasonally Adjusted

	1972		1973											
	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Leading Indicators														
Average Weekly Hours Worked in Manufacturing	40.2	40.9	40.8	40.6	40.6	39.9	39.8	40.1	38.9	39.2	39.9	39.9	39.8	
New Orders in Manufacturing Industries ^c	4,924.7	5,019.4	5,308.7	5,379.2	5,450.8	5,381.3	5,526.2	5,441.6	5,688.5	5,470.3	5,747.5	6,005.4	6,152.0	6,272.7
Building Permits Issued in Ontario, Non-Residential Construction	103.4	122.5	163.0	178.9	136.2	124.9	124.0	102.7	105.0	174.8	103.8	160.1	114.4	161.7
Urban Housing Starts (Annual Rate)	71,800	66,500	116,000	118,200	114,600	91,500	82,300	93,100	123,900	76,900	91,500	77,600	76,200	88,600
Money Supply ^c	42,287	42,837	43,554	44,165	44,511	45,038	45,840	46,195	46,799	47,359	47,838	48,563	48,821	49,908
T.S.E. Industrial Index ^u	215.4	221.6	223.0	220.8	223.8	215.3	205.9	208.4	219.3	215.2	225.3	237.4	211.4	213.7
Business Failures ^u	102	82	77	129	—	92	107	85	80	60	99	93	86	89
Business Failures — Liabilities ^u	13.8	3.8	3.9	8.9	—	5.9	8.6	4.9	4.9	3.5	8.9	11.7	6.1	4.5
Coincidental and Lagging Indicators														
Gross National Product ^c (Annual Rate)		107,804			113,096			116,296			119,080			
Average Hourly Earnings in Manufacturing	3.86	3.86	3.91	3.92	3.96	3.97	4.01	4.04	4.08	4.03	4.13	4.10	4.10	
3-Month Treasury Bill Rate ^{c,u}	3.68	3.65	3.90	3.99	4.46	4.90	5.18	5.48	5.74	6.18	6.50	6.53	6.43	6.35
Cheques Cashed in Clearing Centres ¹	8,449	8,768	9,259	9,108	10,183	9,700	9,703	9,745	10,669	10,375	10,273	10,720		
Retail Trade	1,115	1,107	1,156	1,190	1,187	1,257	1,168	1,187	1,224	1,221	1,232	1,228	1,243	
Labour Force	3,416	3,441	3,453	3,477	3,472	3,494	3,487	3,529	3,483	3,518	3,492	3,558	3,567	3,579
Employed	3,247	3,277	3,307	3,332	3,331	3,357	3,351	3,397	3,349	3,375	3,335	3,404	3,431	3,432
Unemployed	169	164	146	145	141	137	136	132	134	143	157	154	136	147
Unemployed as % of Labour Force	4.9	4.8	4.2	4.2	4.1	3.9	3.9	3.7	3.8	4.1	4.5	4.3	3.8	4.1
Wages and Salaries	1,993	2,016	2,043	2,070	2,087	2,109	2,121	2,133	2,133	2,138	2,180	2,213	2,231	
Index of Industrial Employment	135.5	134.9	136.9	138.1	139.0	140.0	140.6	141.5	142.8	139.4	142.1	144.4	143.1	
Index of Industrial Production^c														
Total Manufacturing ^c	202.7	203.9	205.0	212.2	212.3	212.7	212.5	215.2	214.9	208.7	212.7	216.7	217.1	216.8
Non-Durables ^c	197.0	199.2	200.8	210.3	210.2	209.0	209.1	211.6	211.6	203.9	208.1	212.4	212.5	212.4
Durables ^c	173.7	175.5	176.2	181.4	179.9	182.0	183.0	184.9	184.6	176.5	179.4	182.4	185.2	184.7
Mining ^c	226.5	229.2	231.9	246.7	248.5	243.2	242.0	245.6	245.8	238.7	244.4	250.4	247.1	247.3
Electric Power and Gas Utilities ^c	212.8	207.2	209.8	203.7	207.8	215.4	212.9	212.4	206.0	205.3	210.6	217.3	217.1	217.3
Primary Energy Demand (Annual Rate)	236.5	239.0	233.9	242.6	238.1	240.9	241.2	250.6	256.9	254.4	255.2	252.0	256.3	254.3
Exports (including re-exports) ^c	76.56	75.43	74.96	77.83	74.93	75.97	78.52	79.05	79.79	81.60	79.85	79.23	79.97	78.54
Imports ^c	1,890	1,834	1,927	1,977	2,000	2,055	2,082	2,055	2,134	1,940	2,037	2,186	2,399	2,207
	1,662	1,686	1,759	1,871	1,898	1,750	1,933	1,877	1,949	1,915	1,928	2,102	2,139	2,190
Unclassified Indicators														
Foreign Exchange Reserves ^{c,u}	5,191	5,189	5,116	5,203	5,128	5,061	5,013	5,011	4,939	4,743	4,690	4,848	4,811	4,854
Industrial Materials Price Index ^{c,u}	319.4	324.4	336.7	347.5	353.7	353.2	359.5	369.7						
Consumer Price Index ^{c,u}	142.3	143.3	144.5	145.3	145.7	147.3	148.4	149.7	151.0	153.0	153.9	154.3	155.5	156.4
Toronto ^u	136.6	137.7	139.4	139.7	140.1	141.3	142.5	143.6	144.6	146.2	146.8	147.0	148.0	148.5
Ottawa ^u	138.2	139.1	140.2	140.9	141.2	142.5	144.0	145.3	146.7	148.9	149.5	150.5	152.3	153.4
Thunder Bay ^u	109.1	109.5	110.9	111.2	111.1	112.2	113.2	114.2	115.5	117.6	119.2	117.9	118.5	119.0
Purchasing Power of 1961 Consumer Dollar ^{c,u}	0.70	0.70	0.69	0.69	0.69	0.68	0.67	0.67	0.66	0.65	0.65	0.65	0.64	0.64

^cStatistics for Canada.

^uNot seasonally adjusted.

¹Ontario less Toronto.





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March/April 1974
Volume 12, Number 2

Ministry of Treasury, Economics and Intergovernmental Affairs

Hon. John White, Minister

Hon. Donald Irvine, Minister Without Portfolio

A. Rendall Dick, Deputy Minister



Ontario Economic Review

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Economic Analysis Branch

Demand for Housing in Ontario: A Government Response Through Rehabilitation

Chris Fleming *Economist*
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Selected Economic Indicators

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About the Review

The feature article for the March/April edition of the *Ontario Economic Review* examines some of the most important factors affecting the demand and supply of housing in Ontario and reviews recent federal and provincial measures designed to conserve and upgrade the present housing stock in the older neighbourhoods.

The article was prepared by Chris Fleming in the Policy Planning Branch of the Ministry of Treasury, Economics and Intergovernmental Affairs.

The short article by N. Kristoffy of the Economic Analysis Branch outlines some of the social and economic factors behind the Ontario Government's decision to retain Eastern Standard Time this past winter.

Ministry Appointments

A number of senior appointments affecting the Ministry of Treasury, Economics and Intergovernmental Affairs have been announced by Premier Davis.

Honourable Don Irvine, MPP, who had been Parliamentary Assistant to the Treasurer, has been appointed a Minister Without Portfolio assigned to the Ministry of Treasury, Economics and Intergovernmental Affairs.

H. Ian Macdonald, who has been Deputy Minister since the Ministry was established, has left to take on a special assignment for the Premier before leaving the public service on July 1 to become president of York University. He will continue as a Special Advisor to the Premier on economic matters and intergovernmental affairs.

His successor is A. Rendall Dick, the former Deputy Provincial Secretary for Justice whose appointment as Deputy Minister of Treasury, Economics and Intergovernmental Affairs took effect on April 10.

Along with Mr. Dick's appointment, the Premier announced that Don Stevenson has been appointed Senior Assistant Deputy Minister, Economic Policy and Intergovernmental Affairs.

Indicator Charts, Pages 9-11

Fluctuations in aggregate economic activity — commonly used to define business cycles — do not necessarily correspond with fluctuations in the individual activities which make up the aggregate. Instead different indicators of economic activity may vary with respect to both their rates of growth and the timing of their peaks and troughs: some may grow more rapidly than others, some change direction sooner.

Those activities which tend to assume a direction in advance of the aggregate — because they relate to future rather than present production — are referred to as leading indicators, and are widely used to anticipate the short-run future course of the overall economy. The charts on pages 9, 10, and 11 in the *Ontario Economic Review* present a number of these leading indicators, as well as several which are coincidental to or lag behind the aggregate, to provide for the reader an opportunity to make such an evaluation.

While comparisons of the timing and direction of general changes in the various indicators can readily be made, great care must be exercised in making such a comparison of the amplitude of fluctuations. Of the three vertical scales used — 'A' (arithmetic) and 'L1' and 'L2' (logarithmic scales with one and two cycles respectively over a given vertical distance) — only the logarithmic scales can be used to compare relative changes in different indicators. *And this applies only when all series being compared are on the same logarithmic scale.* In such a situation all parallel lines represent equal rates of growth, the exact rate of growth being determined by the slope of the line.

The Social and Economic Effects of Permanent Daylight Saving Time

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RECENT ISSUES

There has been widespread controversy in the past year in the United States about the adoption of permanent Daylight Saving Time (DST) as an energy conservation measure. Ontario, with its close commercial and industrial links with the United States, has not been shielded from this controversy. In fact, considerable discussion by the Ontario Cabinet on the arguments for and against following the U.S. lead took place this past winter. After careful consideration of the relevant issues, it was decided to remain on Eastern Standard Time (EST) throughout the winter.

This article attempts to put into perspective the social and economic effects of seasonal and permanent DST on Ontario.

BACKGROUND HISTORY

Because of people's predilection for maximizing the daylight available during their waking hours, the movement to adopt DST dates back before the turn of the century. After strong pressures for a number of years, from various sectors, it was finally adopted in the United States in 1918 on a seasonal basis; thereafter, many parts of Canada quickly followed.

DST, when initially introduced, was by no means universally accepted in Canada; nor is there universal acceptance today. Most of the opposition traditionally has come from rural areas where work is mostly tied to sunrise and sunset, not to the clock. Generally, opposition from the agricultural sector is directed not at DST itself, but at the biannual changeover and its short-term side effects.

A Gallup poll taken in September 1973 indicated that 39 per cent of Canadians prefer summer DST, 25 per cent would prefer Standard Time only, and 28 per cent would prefer year-round DST. Surprisingly, these figures compare very closely with those of a similar poll taken in 1945, with respective percentages of 37 per cent, 33 per cent, and 25 per cent.

For many years summer DST was not accepted uniformly by all provinces; within provinces themselves, a few border towns neighbouring those states on permanent EST opted to remain on EST even in the summer. Windsor, for example, remained on year-round EST until 1967, despite the fact that the rest of Ontario was on DST. When the state of Michigan finally adopted summer DST, Windsor followed suit. It became the last city east of Thunder Bay (at that time the twin cities of Fort William and Fort Arthur) to join the rest of the province on DST.

Year-Round DST

During World War II both Canada and the United States adopted year-round DST as an energy conservation measure. The reasoning then was that DST would decrease lighting loads in the evening and thereby save coal and other natural resources used in generating electricity. The Edison Electric Institute estimated that about 1 per cent of the total annual coal consumption used in electrical generation was saved.

The energy situation has again focussed serious attention on various energy-saving measures. On January 6 of this year, the United States reinstituted year-round DST for a trial period of two years. Recent studies by the U.S. Department of the Interior have revealed that there would be, as during World War II, a net saving of in excess of 1 per cent in fuel used for producing electricity. The saving from reduced loads in the evening would far surpass the extra lighting load in the morning. Since many electric generators in the United States are fired by oil, which is in tight supply, as opposed to coal, which is relatively abundant, this measure assumed added importance. It was calculated that there would be not only a saving attributable to a reduced lighting load (approximately 1.5 billion Kwh), but also considerable savings accruing from reduced use of inefficient, peak-load generators. To put the figures in perspective, the estimated savings in the United States would be sufficient to meet all of Ontario Hydro's needs for over one week. Aside from the direct energy savings, it was thought that one of the principal advantages of year-round DST would be that it would help focus the attention of the entire country on the energy problem and help assure co-operation in supporting all administration methods of conserving and not wasting electrical energy.

Britain's Experiment

Year round DST was instituted in Britain for a three-year period commencing in 1968. A poll taken in the last year of the experiment indicated that the majority were in favour of year-round DST, while 39 per cent wanted DST only in summer. Despite this favourable response, permanent DST was abandoned because the northern districts (generally located in much farther northern latitudes than most of populated Canada) were vehemently opposed. MPs felt that the advantages of year-round DST were outweighed by the inconvenience to people living in the north. Northern constituents, as well as farmers, school children, and construction and other outdoor workers were successful in exerting sufficient pressure to have permanent DST dropped.

Effect of Location on Sunrise and Sunset Times

Canada's Eastern Time Zone has the widest geographic span of any in the country, extending from near Thunder Bay in the west to the Gaspé Peninsula in the east. Consequently, there is a significant variance between sunrise and sunset in the eastern and western fringes of the time zone. For example, sunrise in Thunder Bay occurs at 8:47 a.m. on January 1, while in Quebec City it occurs at 7:31 a.m. — 1 hour and 16 minutes earlier. Even in Ontario, there is over one hour's difference between sunrise in Thunder Bay and Cornwall. Sunrise and sunset times in various Ontario cities on January 1 are listed below.

City	Eastern Standard Time	
	Sunrise (a.m.)	Sunset (p.m.)
Toronto	7:53	4:51
Cornwall	7:37	4:28
Ottawa	7:41	4:32
Windsor	8:00	5:09
Sault Ste. Marie	8:23	4:43
North Bay	7:50	4:43
Thunder Bay	8:47	5:14

The relative beneficial effects of DST depend largely on the location of a city in a time zone. The wide divergence between sunrise and sunset indicates that some areas of the province are, in effect, on DST the year round. Thunder Bay, for example, and to a lesser degree Sault Ste. Marie, fall into this category. In the spring, when clocks are advanced one hour, these cities are effectively on double DST. The advantages of a change to DST are much greater for cities in Quebec than those in Ontario. Any move to permanent DST, therefore, should consider Ontario's geographic location within the Eastern Time Zone.

III — ONTARIO'S POSITION ON YEAR-ROUND DST

Ontario's geographic location vis-à-vis the United States, its close commercial and industrial links, and its natural affinity with the bordering states of New York and Michigan, prompted the Ontario Government to examine the feasibility of adopting DST simultaneously with the United States on January 6, 1974. Some of the important considerations in arriving at a decision are discussed below.

Energy Savings

The Ministry of Energy examined the effects of permanent DST in Ontario on energy consump-

tion. The general conclusion reached was different from that reached in the United States; energy savings were calculated to be minimal, perhaps non-existent. The reason for this was that Ontario lies considerably farther north than most states and, consequently, has fewer daylight hours in winter. Therefore, the electricity savings accruing from reduced lighting loads in the evening would be correspondingly offset by the increase in lighting loads during the morning for at least two to three months. It was concluded that any decision on year-round DST in Ontario would have to be made on the basis of social and economic advantages, not energy considerations.

Economic Effects

Although many commercial organizations are tied closely with their U.S. affiliates, a time difference of one hour has little bearing on the profitability of most firms. Many Ontario companies polled before yearend indicated a relative indifference towards the need for switching to permanent DST on the basis of economics alone.

Some airlines, however, whose routes lie along the north-south axis, indicated a strong preference for DST and for synchronizing with the United States. Many were concerned about loss of business due to additional constraints on schedules that would be imposed by being out of step with U.S. timetables.

Ontario TV stations, in areas where U.S. TV signals can be picked up readily, also made a good case for adopting DST. It was argued that the programming strategy of most Canadian stations is geared to competing with U.S. stations. Putting Ontario one hour out of step with the United States, it was claimed, would cause programming scheduling disruptions, loss of audience, and a subsequent decrease in advertising revenue.

Social Effects

i) *Border Cities.* Cities and towns such as Windsor, Sarnia, and Niagara Falls, situated

close to the United States, were in favour of switching to DST for reasons of convenience. Having each side of the border one hour out of phase would cause considerable confusion and irritation, it was felt, especially for residents commuting across the border.

ii) *Commuting Problems for School Children.*

The latest sunrise during the year occurs in early January. Under EST, sunrise in the populated areas of southwestern Ontario occurs between 7:45 a.m. and 8:00 a.m. In northwestern Ontario, sunrise takes place much later; for example, in Thunder Bay sunrise is as late as 8:45 a.m. This means that, even under EST, many school children, especially those who leave home between 7:30 a.m. and 8:00 a.m. on school buses throughout rural areas, have to travel to school in darkness. It is estimated that for about one month 60,000 students out of a total of about two million in the province travel to school in the dark. If winter DST were adopted, nearly all the students in Ontario would have to travel to school in the dark for about one month; some who live in the more northern and western locations would be confronted with morning darkness for much longer. The number travelling to school in darkness would taper off slowly towards the beginning of March, after which virtually no one would need to commute in darkness. Added to the darkness problem, the adverse effects of the extreme cold at dawn in mid-winter would be prolonged from about one to three months under permanent DST.

These factors, in particular, contributed significantly to the decision by the Ontario Cabinet to remain on EST for the duration of the winter.

iii) *Auto Accidents.* Various arguments have been made for and against year-round DST on the basis of traffic safety statistics. The available data indicate that year-round DST would decrease the number of motor vehicle fatalities and serious accidents.

Under wintertime EST, much homework-bound commuting takes place in darkness. Under year-round DST, considerably more commuting would be done in morning darkness than at present. It is generally argued that, because drivers are more fatigued in the evening, the fatality rate and the number of accidents would be higher in evening darkness than in morning darkness. On the other hand, extending morning darkness would create problems for children travelling to school. The three-year experiment with year-round DST in Britain found that the morning accident rate increased, especially for children — but this was more than offset by the decrease in the late-afternoon rate. Overall, road casualties decreased 3.8 per cent during the trial period.

While commuting in morning darkness might be unpleasant, the National Safety Council in the United States, in a recent report on the effect of DST in January 1974 on auto accidents, has found little or no impact on the number of early-morning traffic fatalities among school children.

iv) *Stock Exchanges and Communications Companies.* Stock exchanges, computer time-sharing companies, and other communications companies with electronic linkups with their U.S. counterparts were, for convenience' sake, mainly in favour of accepting DST. Stock exchanges, for example, now have to stay open one hour longer than previously, and employees have to work that extra hour. For computer utilities and communications companies it has meant, in some cases, an adjustment in working hours.

v) *The Agricultural Sector.* Traditionally, the agricultural sector has been the strongest opponent to any form of DST. For some farmers, however, DST has not affected their operations; for others, tied to schedules of customers, adjustment has been difficult. Generally, opposition to summer DST stems not from DST itself but from the biannual changeover which, in many cases, causes confusion and irritation.

Demand for Housing in Ontario: A Government Response Through Rehabilitation

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3

HOUSING SUPPLY

The swiftness with which housing issues have developed throughout Canada over the last three years has served to raise the priority of housing for all levels of government. At present, there is little question that Ontario is faced with a shortage of supply in certain major urban areas. This shortage places at an economic disadvantage those people attempting to enter the housing market and those with fixed incomes living in rental accommodation. One of the areas most affected has been Metropolitan Toronto, where 19,785 housing units were completed in 1973, a 30 per cent decline from the 28,184 units completed in 1972.¹ These decreases in the number of housing completions undoubtedly place potential pressure on the future cost of accommodation. Such a decline is not typical of all areas of the province; for example, completions were up 15 per cent in Ottawa, 21 per cent in St. Catharines/Niagara Falls, and 64 per cent in Thunder Bay. But certain other urban centres also faced a decline: completions were down 23 per cent in Windsor and 28 per cent in Hamilton.

Using Metropolitan Toronto as an example, we can see that, in a locale where supply is falling, there is a tendency for the market to tighten and prices to rise. People with houses sold onto them, anticipating rising values; others, deterred by escalating prices, find themselves unable to enter the home ownership market. Table I compares the residential market in Metropolitan Toronto of January 1973 with that of January 1974 and verifies that the decline in completions previously mentioned was accompanied by a decline in total sales and a corresponding rise in prices.

In many municipalities where the supply of new housing units has not been sufficient to keep pace with the demand for accommodation, the pressure on the available stock of housing has been enormous. This has produced a growing competition for available units, a competition that places many low-and middle-income families and individuals at a disadvantage.

This phenomenon was cited in the recent *Report of the Advisory Task Force on Housing Policy*, which stated:

"the constraints on production and the rising expectations of housing consumers have led to a widening gap between the kind and cost of housing which is provided and peoples' ability and willingness to pay for such housing."²

II — HOUSING DEMAND

The need to increase the production of new dwelling units and preserve the existing stock of housing in Ontario has developed largely as a result of four factors which, in combination, have strongly influenced the production and distribution of housing across the province. These factors are:

- 1) *The Rising Expectations of Potential Home-owners* have placed new pressures on available resources of land, labour, and materials to provide more spacious, more elaborate, and better equipped living environments.
- 2) *Population Growth* has served to considerably increase the overall level of demand for housing and will continue to do so. Even though the total fertility rate is projected to be lower than a natural replacement level of

2.1 during the 1980's, net migration into Ontario is expected to average 50,000 per year until 1986.

- 3) *The Process of Urbanization* has concentrated much of the demand for accommodation in a few rapidly growing urban centres. By 1991, 67 per cent of the province's total population is expected to be located within 21 urban centres along the Windsor-Ottawa corridor.
- 4) *Changes in Household Formation* have decreased the rate of "doubling", a term used to describe two or more families sharing the same dwelling unit, and increased the proportion of unattached individuals and other non-family households occupying separate dwellings.

The impact of these forces on the supply of housing in the province can be seen in many ways. Rising standards, for example, in terms of physical characteristics of new homes and the expectation that the setting and neighbourhood facilities associated with residential living be of a higher quality, require increasingly more investment in the home and the provision of general community facilities. One indication of rising standards is the reduction in the number of persons per occupied dwelling, which varied from city to city but, on the average, declined from 3.7 in 1961 to 3.4 by 1971.³ During the same period, the total population of Ontario increased by over 1.5 million to reach a total of 7.7 million. This growth represents an annual rate of 2.1 per cent or 10.5 per cent every five years, significantly higher than that of any other province and well above the 1.7 per cent growth rate for Canada.⁴ By 1986 the population of Ontario is expected to reach 9.7 million,

Table I — Comparison of January Residential Sales in Metropolitan Toronto, 1973-1974

	Total Value of All Sales (\$)		No. of Units		% Change 74/73	Average Sales Price (\$)		% Change 74/73
	1973	1974	1973	1974		1973	1974	
City of Toronto	41,944,025	27,223,133	1,253	1,130	- 9.8	33,475	32,940	- 1.5
North York	30,337,830	36,523,490	799	843	+ 5.5	37,968	43,326	+14.1
Etobicoke	18,309,555	21,011,200	517	487	- 5.8	35,415	43,144	+21.8
Scarborough	25,769,017	25,333,599	769	631	-17.9	33,510	40,148	+19.8
East York	12,561,760	11,713,400	464	356	-23.2	27,073	32,902	+21.5
York	9,215,900	11,701,760	296	344	+16.2	31,134	34,017	+ 9.3
METRO	138,138,087	143,506,582	4,098	3,791	- 7.4	33,709	37,855	+12.3

Source: Toronto Real Estate Board, January 1974.

an increase of 2.0 million from 1971. This represents a 1.5 per cent annual increase, which is slower than the rate of growth between 1961 and 1971 but still equal to a 25 per cent increase in the next fifteen years.⁵

Increased urbanization has concentrated much of the province's growth in its urban centres. Over the past decade rural and small town population has declined significantly, as a proportion of the total population, from 23 per cent in 1961 to less than 18 per cent by 1971. In contrast, some of the larger urban centres have experienced extraordinary growth; for example, Toronto, Ottawa, and Hamilton have all expanded by between 15 and 20 per cent in each five-year period between 1961 and 1971. Because of this process, over 82 per cent of the province's population could be considered to be urban in 1971, which is an increase from 77 per cent in 1961. If the trend between 1961 and 1971 is maintained, over 90 per cent of Ontario's population will be classified as urban by 1986.⁶

The change in the rate of household formation has been most significant, particularly the reduction in the number of people doubling; by 1971 the number had decreased by 32 per cent from 1961. Secondly, there has been a large increase in the number of non-family households. In 1961 unattached individuals accounted for 13 per cent of the total number of households. By 1971 this proportion had increased to 18 per cent.⁷

There has also been an increase in the rate of new family formation. In the 1961 to 1971 period, the Canadian population between the ages of 20 and 24 increased by 700,000 to 1.9 million, contributing to an increased rate of marriage and family formation.⁸

These factors have generated an increase in the demand for accommodation, particularly in the large urban centres of Ontario, where demand has been increasing at a faster pace than that of population. Table II shows that most of this demand is being met, as might be expected, by the construction of new units in the suburban areas of the metropolitan centres. In terms of total dwelling starts between 1961 and 1971, over 63 per cent were in the suburbs; however, this figure can be misleading because of the dominant position of Metropolitan Toronto. In fact, centre cities still play an important role in the provision of new housing in Ontario. Again, with reference to Table II, it is evident that in six of the seven metropolitan areas in the province, the majority of housing starts have occurred within the centre city rather than in the suburban metropolitan fringe.

Table II — Housing Starts, Metropolitan Centres, Centre Cities vs. Suburbs, 1961-1971

	Total Dwelling Starts 1961-1971		Proportion of Total Starts 1961-1971	
	Centre	Suburbs	Centre %	Suburbs %
Hamilton	27,630	21,274	56.5	43.5
Kitchener	16,357	14,997	52.2	47.8
Ottawa/Hull	45,288	28,911	61.0	39.0
Sudbury	7,974	3,844	67.5	32.5
Toronto	49,883	256,578	16.3	83.7
London	30,842	674	97.9	2.1
Windsor	11,702	3,495	77.0	23.0
TOTAL	189,676	329,773	36.5	63.5

Source: M. Dennis and S. Fish, Programs in Search of a Policy (Toronto: 1972) p. 35.

Table III — New Dwelling Starts in Ontario, as a Proportion of Total Housing Stock, 1961-1971

	Total Stock	Additions	% Increase
1961	1,600,000	48,000	2.9
1962	1,700,000*	44,000	2.6
1963	1,700,000	56,000	3.3
1964	1,800,000	66,000	3.7
1965	1,800,000	67,000	3.7
1966	1,900,000	52,000	2.8
1967	1,900,000	68,000	3.5
1968	2,000,000	80,000	4.0
1969	2,100,000	81,000	3.9
1970	2,100,000	77,000	3.6
1971	2,200,000	90,000	4.1

*Note: *Assumes a net loss of 0.5 per cent each year for replacements and demolitions.*

Source: SC, Census of Canada.

CMHC, Canadian Housing Statistics.

The importance of suburban areas will increase in Ontario with growing demand for low-and medium-density family housing and as vacant centre-city land becomes virtually non-existent. However, it should be recognized that the central areas of the metropolitan communities can remain an important source of accommodation if the existing stock of housing is conserved and rehabilitation is encouraged.

Rehabilitation takes on new significance when it is recognized that in Ontario annual new dwelling starts have at most represented an increase of only 3 to 4 per cent of the total housing stock between 1961 and 1971 (see Table III).

Therefore, if government initiatives are to

have a marked effect on the housing supply in the relatively short term, the maintenance and improvement of the existing housing stock must form an important part of this effort. It is for this reason that the Ontario Government has launched the new Home Renewal Program and the federal government has initiated its Neighbourhood Improvement Program and Residential Rehabilitation Assistance Program.

III — HOUSING REHABILITATION IN ONTARIO

Since December 1973 two new approaches have been initiated by the federal and provincial

governments to upgrade the present housing stock and to improve the living conditions of those living in older neighbourhoods. On December 10, 1973, a federal-provincial agreement was signed by the Hon. Ronald Basford, Minister of State for Urban Affairs, to permit the operation of the Neighbourhood Improvement Program (NIP) and the Residential Rehabilitation Assistance Program (RRAP) in Ontario. On February 12, 1974, the Hon. Robert Welch, the then Provincial Secretary for Social Development and Minister of Housing, formally announced the Government of Ontario's new Home Renewal Program (HRP). The intent of these new initiatives is to conserve and improve those areas where the supply of accommodation is threatened by physical and social deterioration.

A. THE NEIGHBOURHOOD IMPROVEMENT PROGRAM AND THE RESIDENTIAL REHABILITATION ASSISTANCE PROGRAM

The emphasis of these programs is directed to the rehabilitation of the housing stock through the RRAP, while comprehensive redevelopment planning, improvement of social and recreational amenities, and the provision of required improvements to municipal services and public utilities are carried out under the NIP.

Implicit in the design of both these programs is the expectation that they will be supported by other public programs focussing community attention and efforts on these areas, thereby serving to significantly improve the opportunity for rejuvenation of the neighbourhoods. It is further expected that these programs will act as catalytic agents within the community to encourage new efforts on the part of the local inhabitants or community-oriented groups to revitalize these deteriorating neighbourhoods.

Of the two programs, the NIP is the most encompassing, providing for provincial and federal assistance to cover the majority of expenses associated with the necessary municipal planning and redevelopment activities required to rejuvenate such neighbourhoods. RRAP will simply increase the funds available within these NIP areas to rehabilitate the older dwellings.

In outlining the major features of the NIP and RRAP, a number of points can be made.

i) *Eligible Costs.* Under the NIP the provincial and federal governments have agreed to contribute jointly on a shared basis up to 75 per cent of the cost of formulating and selecting plans to be implemented in the neighbourhood. In addition, such grants are also to be provided

to finance the acquisition and clearance of land to be used for medium-and low-density housing for individuals or families of low-to-moderate income.

To provide for the social needs of the residents, grants are also available to acquire or clear land to be used for the purpose of providing open space or community facilities in the neighbourhood and to construct or acquire and improve neighbourhood recreational or social facilities.

Developing occupancy and building maintenance standards that will apply to the neighbourhood and developing systems to enforce such standards will also be subsidized. Finally, up to 75 per cent of the cost will be absorbed for providing loans for commercial improvements in the neighbourhood; relocating individuals and families who have been dispossessed of housing accommodation as a result of the project; and administering the project by the municipality, including the cost of employing persons in connection with the implementation of the project.

Further assistance will be given by the provincial and federal governments, but to a lesser extent, to cover up to 50 per cent of the cost of selecting the neighbourhoods in need of improvement; improving municipal and public utility services for the neighbourhood; and acquiring or clearing land where the existing use is not consistent with the planned general character of the neighbourhood.

In addition, the federal government through CMHC is prepared to make loans available to assist municipalities to meet their share of the costs incurred by their participation in the NIP. Such loans may not exceed 75 per cent of a municipality's share of the costs after all federal contributions have been deducted. However, these loans may cover the full value of loans the municipality might provide for the improvement of commercial premises within the neighbourhood.

ii) *Neighbourhood Selection.* The criteria under which municipalities and neighbourhoods may participate in this program have been developed after extensive tri-level negotiations between the provincial, federal, and, most importantly, municipal governments. In general, eligible neighbourhoods will likely be predominantly residential but may contain non-residential uses such as local stores, schools, banks, churches, small business establishments, and possibly certain non-conforming uses. In addition, it is assumed that in any NIP area a significant portion of the housing stock in the neighbourhood should be in need of rehabilitation or

conservation. Furthermore, it is expected that other elements of the physical environment of the neighbourhood will be in need of rehabilitation and that the neighbourhood will be primarily inhabited by low-or moderate-income wage earners.

Finally, the program has been designed to operate in areas where the neighbourhood's amenities, such as playgrounds and community centres, will be deficient and where there is some assurance by the municipality that the neighbourhood will be stable in terms of residential uses and densities.

iii) *Program Administration.* The operation of the NIP is set up to ensure that the local municipality retains the responsibility for selecting neighbourhoods and for developing and implementing plans within the limits of predetermined funds. To this end, the Ontario Government has indicated that it will work closely with the municipal level of government through the Municipal Liaison Committee to prepare an annual list or lists of municipalities to which provincial and/or federal funds will be allocated in a given year. However, beyond this the choice of the neighbourhood or neighbourhoods within a selected municipality will be a matter for the municipality to decide. Once the process is under way, it is intended that decisions be made locally, with provincial and federal involvement confined to ensuring consistency with general criteria and overall objectives.

In order that maximum benefits flow quickly to the selected neighbourhoods, the need for elaborate and detailed planning has been minimized. This program is characterized by a continuous planning process subject to readjustments as conditions and priorities change. By this approach, it was hoped that it might be possible to avoid the negative effects that might result from extended periods of study, analysis, and planning. Consequently, all that is required to commence implementation after the selection of a neighbourhood is an overall, conceptual plan for the neighbourhood and a preliminary financial plan relative to a definition of the action to be taken in the initial phase of the project.

While the rehabilitation of existing dwellings is one of the primary objectives of the NIP, the federal government has introduced a complementary program, the RRAP, to support the rehabilitation efforts of the various NIP projects. Under the RRAP, funds will be made available for the specific purpose of assisting low-income wage earners to improve and repair their dwellings. These funds will be available to three client groups — homeowners earning

\$11,000 a year or less, landlords who agree to rent controls, and non-profit corporations and co-operatives. The RRAP currently is set up to provide assistance in the form of loans of up to \$5,000 per dwelling unit — at a beneficial interest rate — of which repayment of up to a maximum of \$2,500 may be forgiven if the unit continues to be occupied and maintained by the applicant.

The success of any NIP project will be assessed in terms of the benefits resulting for residents of the neighbourhood and the way in which they regard its achievement of their community priorities. For this reason, the active participation of the residents in the program is seen as an essential element that must form an integral part of the selection, planning, and implementation of the project in the neighbourhood. The interests of the residents are further safeguarded by the requirement that, before any work is approved, it must be shown that any individual who might be dispossessed of accommodation as a result of the project will be suitably rehoused and compensated for any expenses arising from the proposed dispossession.

iv) *Site Clearance.* Unlike previous public programs designed to renew the deteriorating elements in an urban community (which often served to destroy more units than they created), the NIP does not provide for extensive site clearance. Assistance is available, however, for the clearance of small pockets of substandard residential and/or non-residential buildings in a community. It is intended that such assistance be used for spot clearance of residential buildings that are beyond economic rehabilitation and for the removal of noxious uses that have a blighting effect on the neighbourhood. To limit strictly the use of this feature to spot clearance, assistance for the cost of acquisition of land and demolition of buildings in a project may not exceed \$500,000.

Under the site clearance provisions, the federal government will make grants through the Province to the municipality to cover up to 25 per cent of the cost of acquiring and demolishing buildings, less the market value of the cleared land, and relocating individuals whose homes have been acquired under a site clearance project.

Municipalities may also receive federal loans covering up to 75 per cent of their share of the costs, after deducting any applicable federal or provincial grants.

v) *Projected Expenditures.* It is difficult to project the total expenditures under the NIP in its initial stages because of the possible time lag

before implementation begins. This lag is largely a result of the difficulties the municipalities may experience in recruiting staff to operate the program, selecting the neighbourhoods for assistance, and developing a consensus for planning purposes. However, a preliminary list of eligible municipalities has been approved for 1973 and 1974, and the federal government, as shown in Table IV, has committed funds of \$17,300,000 for these 23 municipalities. The level of provincial contributions will depend upon the nature of the particular projects that are approved and the time frame agreed upon for implementation. In addition, the federal government is prepared to make available, to municipalities, loans covering a certain portion of their costs as outlined above; but again the level of expenditure will depend upon the interest of the municipalities in taking up these funds.

B. THE ONTARIO HOME RENEWAL PROGRAM

As with the NIP and the RRAP, the HRP has a number of basic features that should be singled out for consideration.

i) *Eligible Costs.* Three basic types of housing rehabilitation activity are eligible for assistance under this program. How these are combined will be at the discretion of the local level of government, with the approval of the Minister of Housing. The three activities are, firstly, financial supplement for homeowners participating in the RRAP. This supplement will be used to reduce the repayment portion of the RRAP loan or to increase the amount of money available to the homeowner, where required. Secondly, programs will emphasize structural repairs and sanitary improvements applicable to areas not covered by the federal program.

Table IV — Neighbourhood Improvement Program Allotment of Federal Allocations for 1973, 1974

Municipality	Funds Allocated
City of Toronto	\$ 1,720,000.00
Borough of Etobicoke	860,000.00
City of Hamilton	1,290,000.00
City of Ottawa	1,200,000.00
City of Windsor	860,000.00
City of Kingston	645,000.00
City of London	860,000.00
City of Cornwall	430,000.00
City of Sault Ste. Marie	860,000.00
Sudbury Region	1,290,000.00
City of Thunder Bay	860,000.00
City of Sarnia	645,000.00
City of St. Catharines	645,000.00
City of Niagara Falls	645,000.00
City of Brockville	430,000.00
Town of Midland	430,000.00
Township of Sarnia	430,000.00
Town of Grimsby	258,000.00
Town of Ridgetown	258,000.00
Town of Hespeler	258,000.00
Town of Hearst	258,000.00
Town of Lindsay	344,000.00
Township of East Gwillimbury	430,000.00
Sub-total	\$15,996,000.00
Contingencies	1,300,000.00
TOTAL	\$17,296,000.00

Source: Ministry of Housing, Community Renewal Branch.

Thirdly, a program of exterior improvements, including painting and the removal of old fences and garages in predominantly low-and moderate-income areas, will be introduced. The intention will be to produce a psychological impact on the neighbourhood as a whole and to provide an incentive for individual homeowners to carry out further improvements on their own. This type of activity will normally be carried out by work crews hired and directed by the municipalities.

Provincial funds will be allocated to any municipality that applies for them on a per capita grant basis. However, 25 per cent of this money has been set aside for municipalities with a population of 5,000 people or less. This has been done to guarantee that the rural and northern areas of the province are assured special consideration under the program.

The formula for provincial grants to municipalities under the HRP is structured so that municipalities with a population of 5,000 or less will be eligible for grants in the ratio of \$4.00 per capita, while municipalities with a population between 5,001 and 100,000 will be eligible for grants of \$3.00 per capita. Where a municipality has a population of more than 100,000 a grant of \$2.00 per capita will be available. Finally, eligible municipalities with a population of less than 1,000 will receive a minimum of \$4,000 under the program.

Program Administration. The regional or municipal governments which receive these funds will administer the programs themselves and will be responsible for advising their residents of what money is available to them and how they can apply for it. It will be left to the regional governments or restructured counties to determine whether, and to what extent, delegation to lower-tier municipalities will take place. The only exceptions to this will be in the case of rural or unorganized areas, in which case the Ministry of Housing may undertake the administration.

As previously mentioned, three types of home renewal activity will be permissible under the new program. How these are combined will be at the discretion of the local level of government which is administering the program, with the approval of the Minister of Housing.

The HRP will be available to every municipality in the province. The funds will be issued upon receipt of an annual application by the Ministry. This application will include necessary supporting data, such as the building, maintenance, and health standards the municipality intends to use as a basis for giving aid to individuals.

As far as the qualifications for homeowner applicants for the loans and grants are concerned, the maximum income in the case of a homeowner within NIP areas cannot exceed \$11,000, while the maximum annual income of homeowners outside of NIP areas will be either \$12,000 or the current income limits defined by Ontario Housing Corporation for purchasing a house under the Home Ownership Made Easy Plan, whichever is the greater. There are no income limitations placed upon absentee landlords. However, they will have to agree to rent stabilization in order to qualify for the grants or loans that will be available.

The funds supplied to the municipalities by the Government of Ontario will be in the form of a straight annual grant. The municipalities can use the funds for both grants and loans to homeowners, providing the total municipal grants do not exceed 50 per cent of the total annual provincial grant. The loans and interest on them will be geared to the ability of the property owner to repay them, and the interest rates can run from zero to whatever maximum the local government decides upon. However, the average interest rate charged must be at least 3 per cent on the loan portion of the funds. The geared-to-income formula will be locally developed but will require provincial approval as part of the municipal application for funds.

As the loans are repaid by the recipients, the municipalities will retain the capital and interest payments to extend the program — it will become, in fact, a revolving fund for the municipalities. Fifty per cent of the money that comes back to the municipality in payments of capital and interest will then be available for new municipal grants, and the other 50 per cent will be used for new municipal loans.

Neither a maximum nor a minimum has been placed on the grants and loans made by the municipalities, in order to allow them as much flexibility in the administration of their individual programs as possible. This is intended to allow each municipality to make its own decisions on whether an applicant would receive a straight grant, a loan, or a combination of a grant and a loan. This desire for flexibility was also the reason for deciding to leave the decision to the municipality on how much interest a loan recipient would have to pay on his loan.

iii) *Projected Expenditures.* While it is difficult to anticipate the rate of municipal take-up of such funds, the Ontario Government has announced that approximately \$10 million will be available to municipalities during the 1974-1975 fiscal year. However, at mid-March,

legislation to provide these funds had still to be introduced. It is expected that such a bill would be introduced during the present session of the Legislature.

IV — PRELIMINARY EVALUATION OF THESE PROGRAMS

As mentioned above, both the NIP and the RRAP will be the subject of an ongoing review by the three levels of government. The operating agreement for NIP will be formally reviewed on an annual basis and modified as required to meet the stated objectives of the program. However, it is possible to make some initial comments at this time on how these programs might be improved.

At present, the NIP design does not provide sufficient assistance for renewal of commercial areas which are often closely associated with many of the province's older centre-city neighbourhoods. Many of these commercial areas are deteriorating and this process has a seriously harmful effect on adjoining residential areas. Therefore, consideration should be given to including these areas as an integral element of any comprehensive neighbourhood improvement effort. In fact, to ignore the influence of such commercial areas on the surrounding housing is likely to seriously reduce the long-term potential of the NIP to improve the living conditions in many older neighbourhoods.

Another apparent weakness of the NIP approach is the present ceiling of \$5,000 per unit on rehabilitation loans for the RRAP and the reduction of the RRAP funds to NIP areas. Given the cost of materials and labour in many of the urban centres of the province and the extensive nature of the work that is often required, this ceiling is likely to prove too low to produce the desired results. Furthermore, many small pockets of housing in need of rehabilitation occur throughout the province in small urban and rural areas, not just in concentrations in the older sections of Ontario's major urban centres where NIP is to operate.

A more realistic approach would be to allow RRAP funds to apply to any housing unit in the province and to provide some flexibility in the present ceiling to reflect local price variations and, finally, to permit the municipality in which a RRAP project has been approved to distribute such loans on the basis of need, while ensuring that the average per unit cost is \$5,000 or less.

Generally speaking, however, these programs are well designed and can be expected to considerably improve the housing and living condi-

tions in many older areas of Ontario's communities. The NIP and the RRAP provide a comprehensive mechanism both for improving the physical quality of the housing stock and for providing for the social needs of those now living in these deteriorating urban neighbourhoods. The Ontario HRP will provide valuable funds to complement these programs, but more importantly, provide greater assistance in meeting the needs of the smaller communities in Ontario that have a proportionately greater number of older housing units and a larger proportion of poor quality housing. This can be seen from Table V which indicates by urban size group the proportion of units constructed before 1920 and the number of units without bath facilities — two variables that indicate the state of the housing stock in any community. For both variables it is apparent that smaller communities are proportionately in greater need of housing rehabilitation.

To the extent that these programs are able to conserve the existing housing stock, the pressure to increase the production of new housing is reduced. Furthermore, not only many good, solid, large family housing units will be preserved through these programs, but also accommodation for low-income families who depend on this older stock to supply them with reasonably priced accommodation will, to a large degree, be more readily available.

Table V — Proportion of Housing Stock Constructed in 1920 or Before, and Proportion of Units without Bath Facilities, by Urban Size Groups, Ontario, 1971¹

	Total Housing Stock (Units)	% of Total Constructed in or Before 1920	% of Total Without Facilities
500,000 or more	824,325	14.0	0.5
100,000 - 499,999	403,230	17.8	0.8
30,000 - 99,999	255,185	21.3	1.6
10,000 - 29,999	172,205	27.9	2.2
5,000 - 9,999	89,380	31.8	3.5
Under 5,000	119,620	36.9	5.1
Total, urban regions	1,863,950	19.5	1.3
rural non farm	272,795	31.0	17.5
farm	88,465	70.5	14.7
Total, rural	361,255	40.7	16.8
Total	2,255,210	22.9	3.8

¹ SC, Census of Canada, 1971.

¹ CMHC, Housing Statistics: Ontario Region (Toronto: February 1974).

² Ontario, Report of the Advisory Task Force on Housing Policy (Toronto: Queen's Printer, Aug. 1973) p.3.

³ Peter Barnard Associates, Development in the Cost, Supply and Need for Housing in Ontario — a background report prepared for the Advisory Task

Force on Housing Policy (Toronto: April, 1973) p. 9.

⁴ SC, Census of Canada.

⁵ Ontario, Ministry of Treasury, Economics and Intergovernmental Affairs, Ontario Short-Term Population Projections, 1971-1986. (Toronto: Queen's Printer, Jan. 1973) p.1.

⁶ SC, Census of Canada, and Ontario, Ministry of

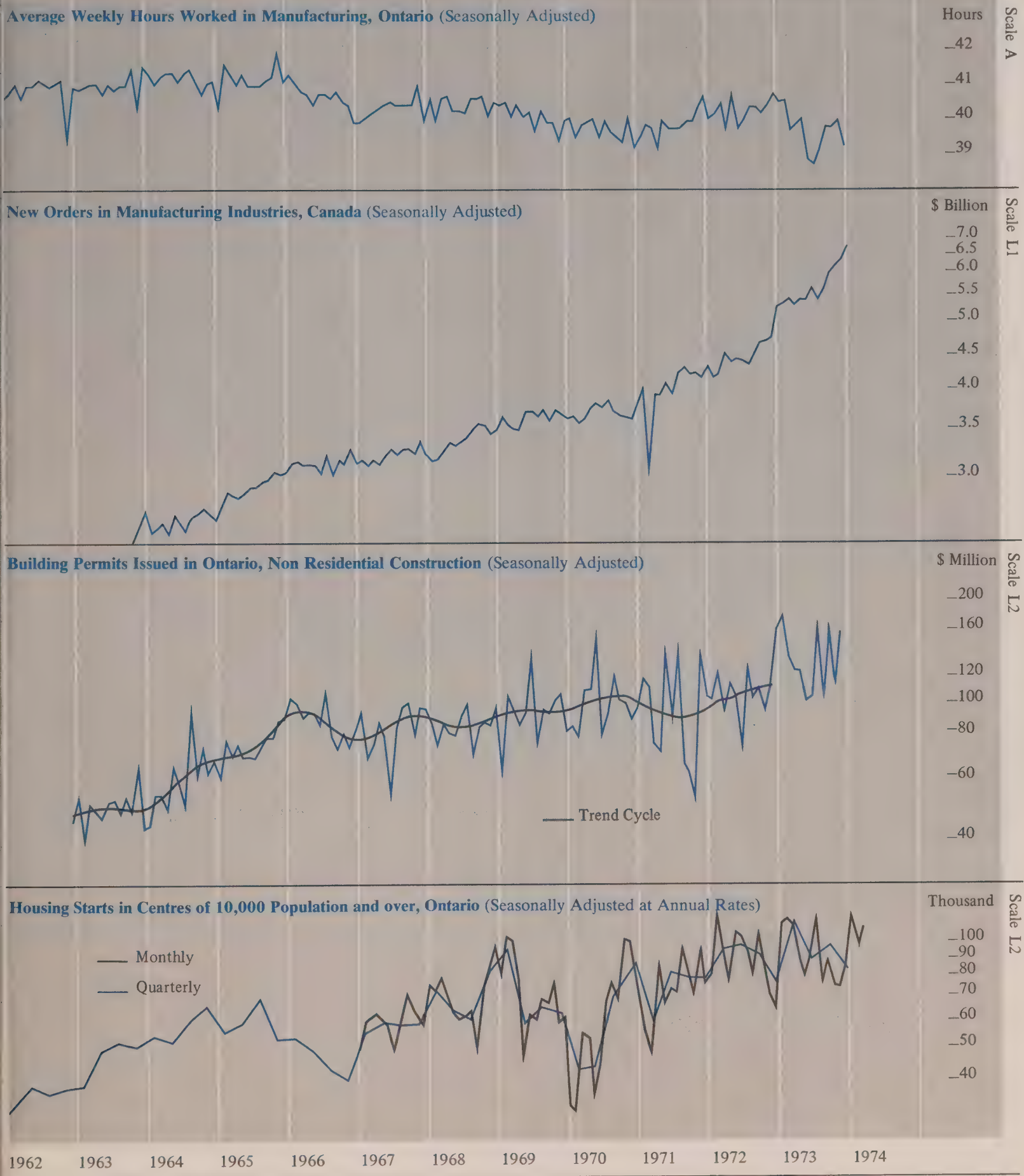
Treasury, Economics and Intergovernmental Affairs, Some Demographic Considerations in the Development of an Economic Strategy for Ontario a working paper. (Toronto: March 1973) p. 21.

⁷ Peter Barnard Associates, pages 2 and 3.

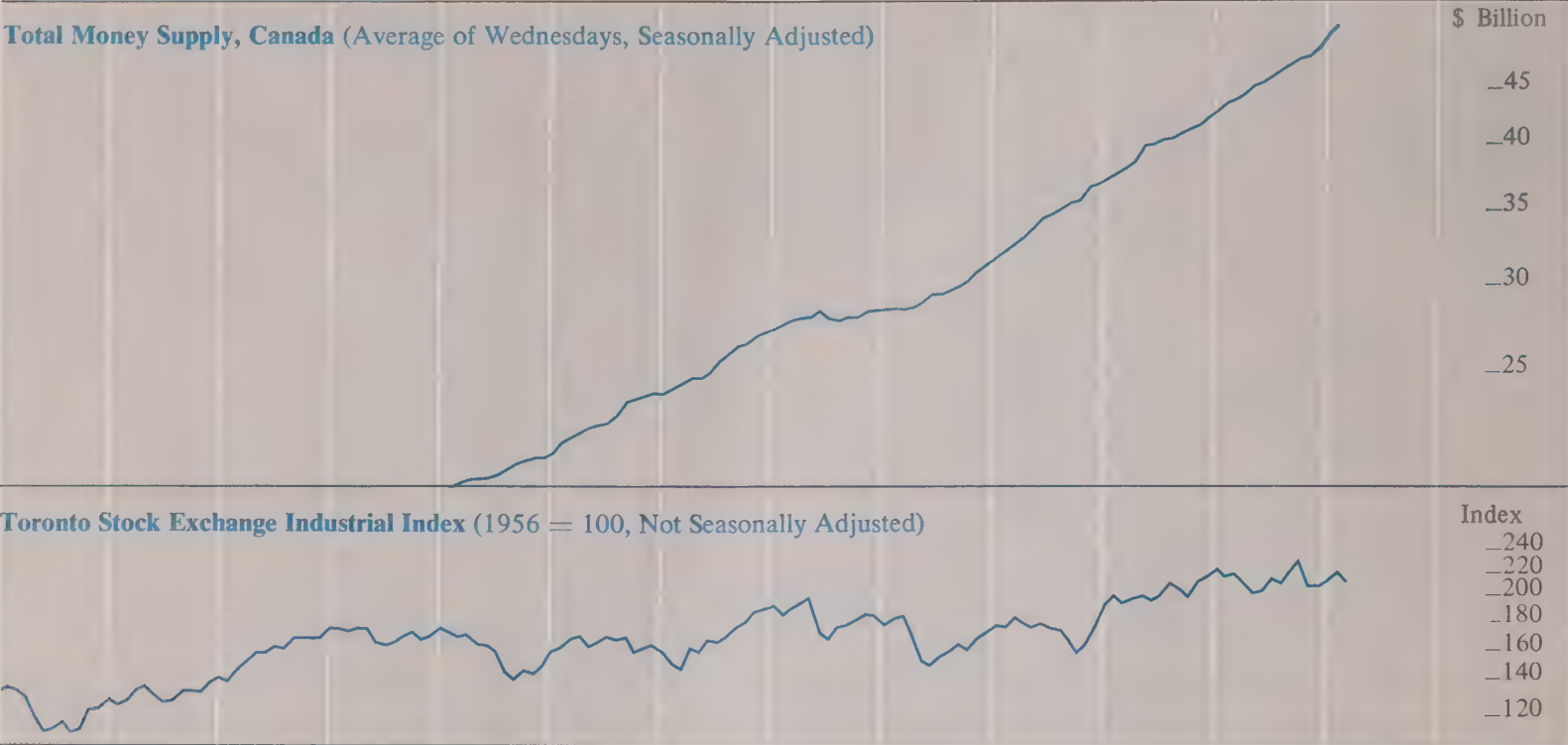
⁸ Ontario, Report of the Advisory Task Force on Housing Supply — Working Paper, Vol. I (Toronto: June 1973) p. 4.

Selected Economic Indicators

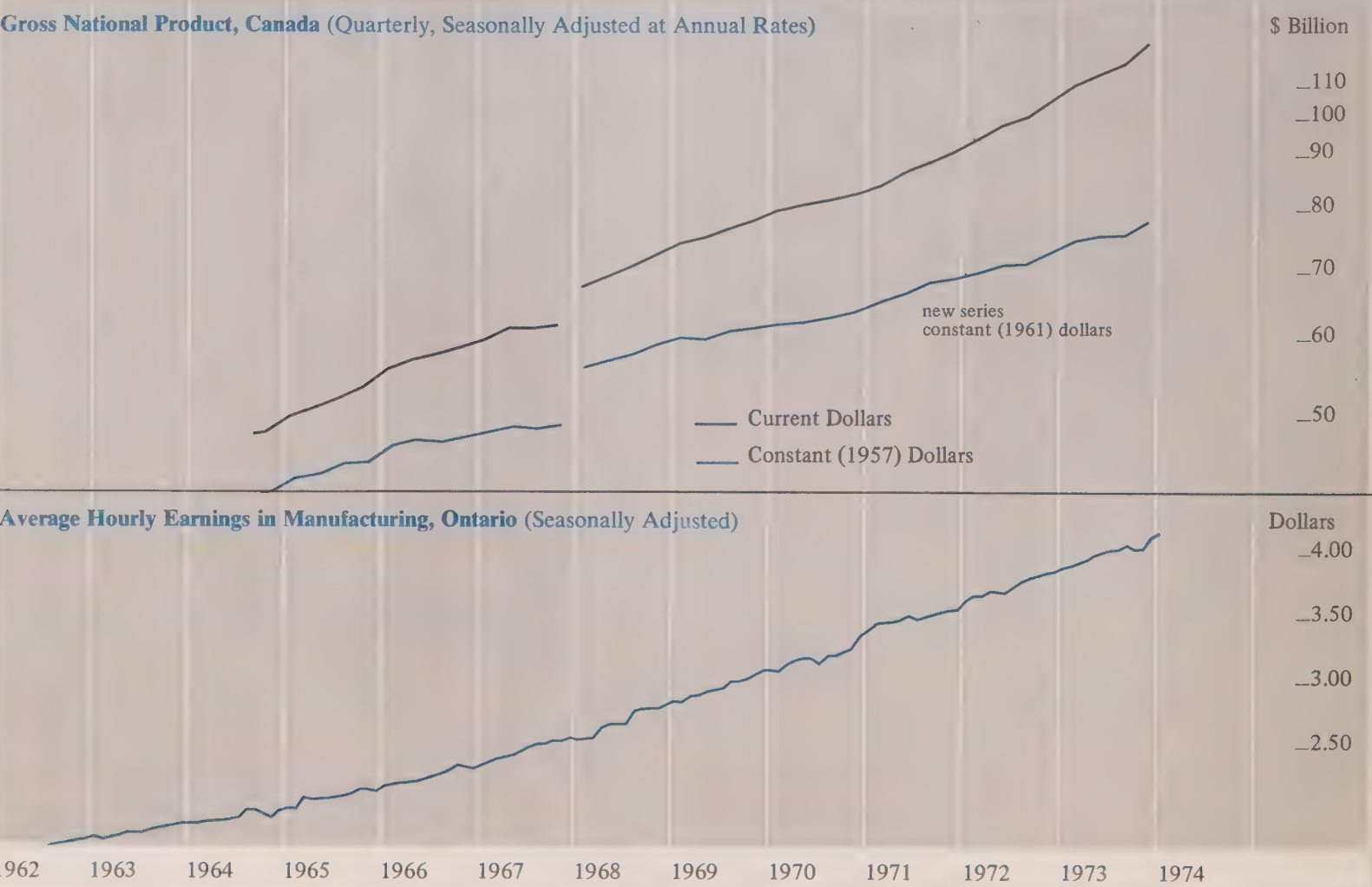
Leading Indicators



Leading Indicators



Coincidental and Lagging Indicators



Coincidental and Lagging Indicators

Average Yield of 3-Month Treasury Bills, Canada (Last Wednesday of the Month, Not Seasonally Adjusted)

Per Cent

Scale A



Employment, Ontario (Seasonally Adjusted)

Million

Scale L1



Unemployment Rate, Ontario (Per Cent of Labour Force, Inverted Scale, Seasonally Adjusted)

Per Cent

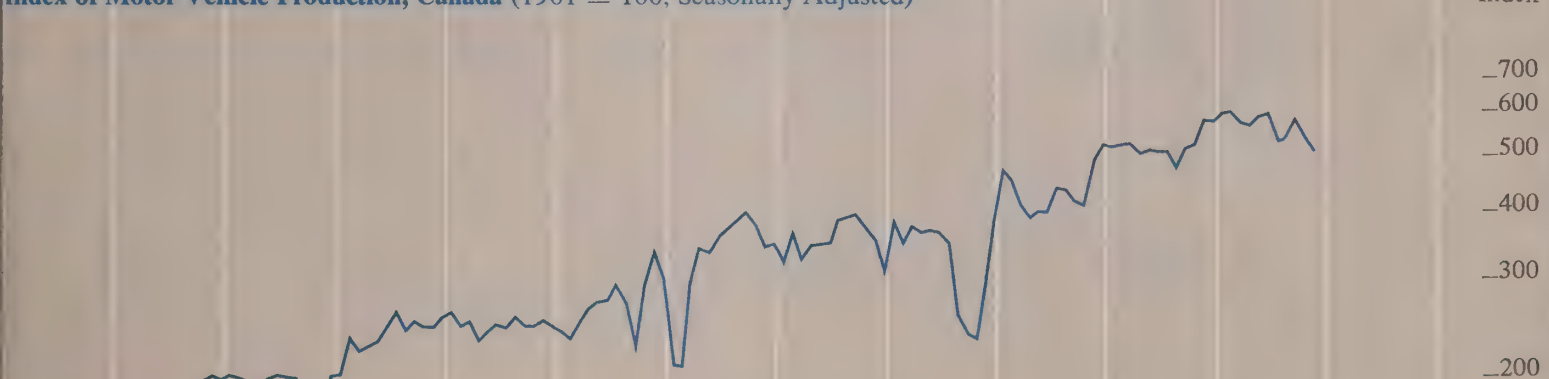
Scale A



Index of Motor Vehicle Production, Canada (1961 = 100, Seasonally Adjusted)

Index

Scale L2



1962 1963 1964 1965 1966 1967 1968 1969 1970 1971 1972 1973 1974

Economic Indicators

Seasonally Adjusted

	1973												1974		
	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	
Leading Indicators															
Average Weekly Hours Worked in Manufacturing	40.6	40.6	39.9	39.8	40.1	38.9	39.2	39.9	39.9	39.7	40.0	39.3			
New Orders in Manufacturing Industries ^c	5,379.2	5,450.8	5,381.3	5,526.2	5,441.6	5,688.5	5,470.3	5,747.5	5,980.4	6,163.7	6,415.2	6,504.7			
Building Permits Issued in Ontario, Non-Residential Construction	178.9	136.2	124.9	124.0	102.7	105.0	174.8	103.8	160.1	114.4	161.7				
Urban Housing Starts (Annual Rate)	118,200	114,600	91,500	82,300	93,100	123,900	76,900	91,500	77,600	76,200	88,600	118,100	99,800	113,200	
Money Supply ^c	44,157	44,524	45,041	45,689	46,126	46,779	47,346	47,898	48,619	48,888	50,052	50,797	51,569		
T.S.E. Industrial Index ^u	220.8	223.8	215.3	205.9	208.4	219.3	215.2	225.3	237.4	211.4	213.7	215.0	222.9	215.3	
Business Failures ^u	129	—	92	107	85	80	60	99	93	86	89	90	100	73	
Business Failures — Liabilities ^u	8.9	—	5.9	8.6	4.9	4.9	3.5	8.9	11.7	6.1	4.5	9.9	5.4	4.8	
Coincidental and Lagging Indicators															
Gross National Product ^c (Annual Rate)		113,096		116,296				120,112				125,208			
Average Hourly Earnings in Manufacturing	3.92	3.96	3.97	4.01	4.04	4.08	4.03	4.13	4.23	4.10	4.21	4.25			
3-Month Treasury Bill Rate ^{c,u}	3.99	4.46	4.90	5.18	5.48	5.74	6.18	6.50	6.53	6.43	6.35	6.22	6.07		
Cheques Cashed in Clearing Centres ¹	9,108	10,183	9,700	9,703	9,745	10,669	10,375	10,273	10,720	11,354	11,027	11,928	11,281		
Retail Trade	1,190	1,187	1,257	1,168	1,187	1,224	1,221	1,232	1,228	1,243	1,240	1,262	1,323		
Labour Force	3,477	3,472	3,494	3,487	3,529	3,483	3,518	3,492	3,558	3,567	3,579	3,598	3,616	3,628	
Employed	3,332	3,331	3,357	3,351	3,397	3,349	3,375	3,335	3,404	3,431	3,432	3,449	3,461	3,475	
Unemployed	145	141	137	136	132	134	143	157	154	136	147	149	155	153	
Unemployed as % of Labour Force	4.2	4.1	3.9	3.9	3.7	3.8	4.1	4.5	4.3	3.8	4.1	4.1	4.3	4.2	
Wages and Salaries	2,070	2,087	2,109	2,121	2,133	2,133	2,138	2,194	2,227	2,247	2,262	2,282	2,295		
Index of Industrial Employment	138.1	139.0	140.0	140.6	141.5	142.8	139.4	142.1	144.7	143.0	143.7	144.4			
Index of Industrial Production ^c															
Total Manufacturing ^c	212.2	212.3	212.7	212.5	215.2	214.9	208.7	212.7	217.0	218.1	217.7	219.9	221.8		
Non-Durables ^c	210.3	210.2	209.0	209.1	211.6	211.6	203.9	208.1	212.9	213.6	213.6	218.7	218.8		
Durables ^c	181.4	179.9	182.0	183.0	184.9	184.6	176.5	179.4	182.8	186.8	186.4	188.9	190.8		
Mining ^c	246.7	248.5	243.2	242.0	245.6	245.8	238.7	244.4	250.9	247.5	248.1	256.3	254.3		
Electric Power and Gas Utilities ^c	203.7	207.8	215.4	212.9	212.4	206.0	205.3	210.6	217.3	216.8	216.0	202.0	212.2		
Primary Energy Demand (Annual Rate)	242.6	238.1	240.9	241.2	250.6	256.9	254.4	255.2	252.0	258.6	254.7	258.7	262.2		
Exports (including re-exports) ^c	77.83	74.93	75.97	78.52	79.05	79.79	81.60	79.85	79.23	79.97	78.54	80.27	81.20		
Imports ^c	1,977	2,000	2,055	2,082	2,055	2,134	1,940	2,069	2,212	2,404	2,205	2,420	2,402		
	1,871	1,898	1,750	1,933	1,877	1,949	1,915	1,932	2,100	2,150	2,164	2,201	2,449		
Unclassified Indicators															
Foreign Exchange Reserves ^{c,u}	5,203	5,128	5,061	5,013	5,011	4,939	4,743	4,690	4,848	4,811	4,854	4,939	5,282		
Industrial Materials Price Index ^{c,u}	348.1	354.2	353.7	360.9	372.6	393.8	419.7	406.8	418.3	427.0					
Consumer Price Index ^{c,u}	145.3	145.7	147.3	148.4	149.7	151.0	153.0	153.9	154.3	155.5	156.4	157.6	159.2	160.8	
Toronto ^u	139.7	140.1	141.3	142.5	143.6	144.6	146.2	146.8	147.0	148.0	148.5	150.2	152.0	153.1	
Ottawa ^u	140.9	141.2	142.5	144.0	145.3	146.7	148.9	149.5	150.5	152.3	153.4	154.5	155.9	157.3	
Thunder Bay ^u	111.2	111.1	112.2	113.2	114.2	115.5	117.6	119.2	117.9	118.5	119.0	119.6	120.9	122.0	
Purchasing Power of 1961 Consumer Dollar ^{c,u}	0.69	0.69	0.68	0.67	0.67	0.66	0.65	0.65	0.65	0.64	0.64	0.63	0.63	0.62	

^cStatistics for Canada.
^uNot seasonally adjusted





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May/June 1974

Volume 12, Number 3

Ministry of Treasury, Economics and Intergovernmental Affairs

Hon. John White, Minister

Hon. Donald Irvine, Minister Without Portfolio

A. Rendall Dick, Deputy Minister



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Competition Policy in Canada

Robert Rickover, *Economist*
Policy Planning Branch

Sudbury Area Planning Study:

Pierre Beeckmans, Mark Heitshu
Local Planning Policy Branch

A Computer-Aided Land Capability Model

Selected Economic Indicators

1

A publication of the
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Government of Ontario

Hon. John White, *Minister*
Hon. Donald Irvine, *Minister Without Portfolio*
A. Rendall Dick, *Deputy Minister*

The *Ontario Economic Review* is prepared and edited bimonthly in the Economic Analysis Branch of the Office of Economic Policy, Ministry of Treasury, Economics and Intergovernmental Affairs. The review presents articles of interest as well as current information on economic activity in Ontario. Signed articles reflect the opinions of their authors and do not necessarily represent the views of the Ministry.

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About the Review

The factors relevant to the planning of a region are so varied and complicated that decision makers are faced with an overwhelming task in fulfilling their obligation to adopt a regional plan. The first basic question is: what land area should be permitted and encouraged to develop and what lands should be protected from urbanization? Once this decision is made, a framework is established for all subsequent decisions.

The authors have prepared a tool to facilitate this task and applied it to an area of 3,600 square miles centered on the city of Sudbury. The tool is a computer program whereby the disparate elements of information are each expressed in terms of their effect as constraints to urban development and then aggregated in a composite map.

The study is not seen as the technocrat's definitive answer to a planning problem but as a tool permitting planners, politicians, and the public to assess the effect of trade-offs between competing priorities such as the environment and engineering efficiency. Mark Heitshu and Pierre Beeckmans undertook the study in the Local Government Services Division of the Ministry of Treasury, Economics and Intergovernmental Affairs. They are now both with the Local Planning Policy Branch, Urban and Regional Planning Division of the same Ministry.

Some questions raised by recently proposed modifications to the Combines Investigation Act are discussed in an article by Robert Rickover of the Policy Planning Branch.

Three areas of particular concern at the present time involve the amount of power granted to an appointed administrative agency; the relationship of competition policy to other economic and social priorities; and conflicts and confusion caused by overlapping jurisdiction. Because federal competition legislation will have major impacts throughout the economy, it is of the utmost importance that its evolution take place in co-operation with representatives of provincial and local governments.

Indicator Charts, Pages 12-14

Fluctuations in aggregate economic activity — commonly used to define business cycles — do not necessarily correspond with fluctuations in the individual activities which make up the aggregate. Instead different indicators of economic activity may vary with respect to both their rates of growth and the timing of their peaks and troughs: some may grow more rapidly than others, some change direction sooner.

Those activities which tend to assume a direction in advance of the aggregate — because they relate to future rather than present production — are referred to as leading indicators, and are widely used to anticipate the short-run future course of the overall economy. The charts on pages 12, 13, and 14 in the *Ontario Economic Review* present a number of these leading indicators, as well as several which are coincidental to or lag behind the aggregate, to provide for the reader an opportunity to make such an evaluation.

While comparisons of the timing and direction of general changes in the various indicators can readily be made, great care must be exercised in making such a comparison of the amplitude of fluctuations. Of the three vertical scales used — 'A' (arithmetic) and 'L1' and 'L2' (logarithmic scales with one and two cycles respectively over a given vertical distance) — only the logarithmic scales can be used to compare relative changes in different indicators. *And this applies only when all series being compared are on the same logarithmic scale.* In such a situation all parallel lines represent equal rates of growth, the exact rate of growth being determined by the slope of the line.

Ontario Economic Review

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Competition Policy in Canada

Robert Rickover, *Economist*
Policy Planning Branch

INTRODUCTION

In its July 1969 *Interim Report on Competition Policy*, the Economic Council of Canada recommended that an important part of Canada's competition legislation be placed on a civil rather than a criminal law basis and that a specialized tribunal be created

"...to impose and/or recommend means of removing or forestalling impediments to the effective working of competitive market forces...for the benefit of the people of Canada".¹

The Council also urged that competition policy be extended to cover the service industries. While there is little question that some modifications to the existing Combines Investigation Act are desirable, the changes that have been set forth in recently proposed federal legislation have themselves posed a number of potential problems. It is the purpose of this article to examine the most important of these and to suggest, in general terms, how they might be provided in future legislation.

First, however, it is useful to briefly review the legislative history of federal competition policy since the release of the *Interim Report*. In June 1971, Bill C-256, "The Competition Act", was introduced. In addition to creating numerous new per se criminal offences and providing several consumer protection measures, the Bill proposed establishing a Competitive Practices Tribunal with wide discretionary powers over various trade practices, mergers, specialization agreements, and other aspects of industrial structure. It would also have extended existing combines legislation to cover services. Reservations about the Bill were expressed in several quarters — including the Ontario Government — and it was allowed to lie on the order paper in early 1973.²

Later that same year, the federal government announced that it would submit revised competition legislation in two stages. In November, "Stage I" (Bill C-227) was introduced, covering some of the same ground as its predecessor but leaving for "Stage II" questions relating to mergers, monopolies, and the like. Instead of a new Tribunal, the existing Restrictive Trade Practices Commission would have been given broad, quasi-judicial powers over certain trade practices, generally involving buyer-seller relationships. That Bill too died on the order paper at the end of the year and was reintroduced early in 1974 as Bill C-7. Again, there were criticisms from the private sector, and the Ontario Government expressed concern about

certain portions of the Bill.³ It had been given second reading when Parliament was dissolved on May 9.

While it is impossible, of course, to anticipate the details of future federal competition legislation, it may be useful at this time to review some of the basic questions which arose during discussions of the previous bills. Broadly speaking, they fall under three general headings:

1. Should an appointed body be empowered to formulate policies that will determine Canada's future industrial structure?
2. How can competition policy be developed as part of a consistent set of economic and social priorities?
3. How can federal competition policy be drafted in a way that avoids unnecessary overlaps and conflicts with provincial and local regulations?

II — THE ROLE OF AN APPOINTED COMPETITION AGENCY OR TRIBUNAL

To date, Canadian competition policy has been based on criminal law and has consisted of numerous broad prohibitions against certain business activities that are deemed to be undesirable. Over the years, the courts' interpretations of these statutes have tended to limit their applicability, and it has become increasingly clear that criminal law is too blunt for many of the complex business problems that arise in our modern economy. In order to deal effectively with these problems, policy makers have a pressing need for more flexible instruments and procedures. Shifting major portions of competition legislation to a civil law basis and granting additional authority to a specialized agency could provide this flexibility in areas that do not lend themselves to unqualified prohibitions but, rather, require a case-by-case review.

Such a change, however, gives rise to the very difficult questions of how much and what type of power should be given to an appointed body. It has been argued that bills C-256 and C-7 failed to draw a sufficiently clear distinction between policy formulation and policy implementation. As a result, both these functions would have been left largely in the hands of an appointed body. Of course, any civil law regulation of competition would be a complex task and a certain amount of administrative power has to be delegated to a subordinate agency charged with carrying out existing policies. At the same time, a strong case can be

made for keeping the ultimate responsibility for formulating these policies at the political level.

A specific example from Bill C-7 serves to illustrate the importance of this principle. The Bill, if enacted, would have granted the Restrictive Trade Practices Commission power to forbid the implementation in Canada of foreign laws, judgements, and directives.⁴ This would probably cause difficulties if officials had to enter into negotiations concerning extraterritoriality with a foreign government, since matters that are fundamental to the country's international relations conventionally are retained within the control of persons answerable to the electorate.

Leaving policy-making powers to an appointed agency could also strain intergovernmental relationships within Canada. Provincial governments have every interest in co-operating with the federal government in formulating national economic policies and, accordingly, their active participation is an essential aspect of the process of defining guidelines and objectives for national competition policy. In a federal system of government it is probably more practical and effective for provincial governments to make their contribution on major public policy issues such as competition policy at the ministerial level rather than through an appointed body.

There are several ways in which a more suitable balance could be achieved between the need for administrative flexibility, on the one hand, and the necessity of keeping overall responsibility and control over competition policy in the hands of elected officials, on the other. One approach would be for the Cabinet to review all decisions made by the competition agency or tribunal. This is the sort of procedure that is followed in connection with the screening agency set up under the recently enacted Foreign Investment Review Act. An important advantage of this approach is that while routine matters can be handled expeditiously, those cases requiring new policy decisions will continue to be scrutinized at the Cabinet level.

Another procedure would be for the Government to issue, in connection with its competition legislation, regulations, guidelines, and interpretations. This would provide the flexibility necessary to clarify official policy as it evolves over time and would maintain responsibility for that policy in the hands of elected officials. This approach has been used for a number of years in connection with the administration of the federal Income Tax Act and the Ontario Securities Act.

Economic Council of Canada, *Interim Report on Competition Policy* (Ottawa: 1969), p. 112.

The Ontario Government submitted a detailed critique of Bill C-256 in its *Position Paper on National Competition Policy*, February 1973.

³ *Government of Ontario Commentary on the Federal Government's Competition Legislation*, April 1974.

⁴ Department of Consumer and Corporate Affairs, *Proposals for a New Competition Policy for Canada: First Stage*, November 1973, pp. 38-41.

⁵ Statistics Canada, *Summary of Imports and Summary of Exports*, February 1974 and earlier issues.

⁶ Senate Special Committee on Science Policy, *A Science Policy for Canada (Volume 2)* (Ottawa: 1972), pp. 550-553.

III — THE RELATIONSHIP OF COMPETITION POLICY TO OTHER ECONOMIC POLICIES AND GOALS

Competition policy legislation directly affects a wide range of economic activities including trade and investment, research and development, and regional development, to name but a few. Similarly, legislation in other areas may have a significant impact on industrial structure. Because of these important interrelationships, it is essential that the role which competition policy will be expected to play in Canada's future be clearly defined.

In a dynamic and complex economy such as ours, a master plan or blueprint for a comprehensive industrial strategy would, of course, be unrealistic. However, policies and programs have to be co-ordinated to ensure that they do not work in opposition to each other. As a general rule it is desirable to limit, as far as possible, the number of objectives that any given policy is designed to achieve. Competition is most useful in helping to increase economic efficiency and in safeguarding against certain kinds of abusive practices resulting from concentrations of economic power.

It is also important that competition not be sought after as a desirable end in itself. Competition should be deliberately fostered only when its costs are more than outweighed by the benefits that it is likely to produce. Because of Canada's heavy reliance on international trade, it must be particularly careful in this regard. At present, many sectors of Canada's industrial structure do not meet world standards of efficiency. The reasons for this are various: the relatively small size of many domestic markets; the historical role of tariff policy; and heavy foreign-ownership ties. The imposition of a rigorous, competitive policy that emphasized solely the domestic aspects of industrial efficiency would undermine the long-term industrial rationalization necessary to develop industries capable of competing in world markets.

An indication of the weakness and vulnerability of Canada's industrial base can be seen in the growing trade deficit in secondary manufactured products. From 1964 to 1973 this deficit grew from about \$2.6 billion to \$6.5 billion.⁵ There are undoubtedly many reasons for this disappointing performance, including the country's proximity to the large United States market and its tariff, tax, and foreign investment policies. But it is also clear that a large part of the explanation lies in the absence of a strong industrial structure.

The weakness of the industrial structure is a cause — as well as a result — of Canada's failure to develop the innovative capacity necessary to

compete in world markets. This problem has been recognized by the Senate Special Committee on Science Policies, chaired by the Honourable Maurice Lamontagne.⁶ The Committee noted that many industries are too fragmented to afford a minimum critical mass of research and development activity. The Committee stated its belief that specialization and scale have a growing importance and that the criterion of consumer benefit alone is too narrow a basis for the appraisal of business arrangements and practices. Policy makers must not, the Committee argued, fail to take proper account of the imperatives of a broad industrial and technological strategy.⁷

This suggests that future legislation give priority to the economic benefits that can be achieved through industrial rationalization, such as its effects on employment, the ability to compete in international markets, and the encouragement of indigenous technology and regional development. The presumption in favour of a high degree of competition as an objective in itself should perhaps be shifted to permit desirable restructuring of the Canadian economy. This will require legislation that avoids imposing arbitrary and narrowly defined rules of behaviour, thereby allowing policy makers the flexibility necessary to weigh the broad economic consequences of changes in our competitive structure.

IV — THE RELATIONSHIP BETWEEN FEDERAL COMPETITION LEGISLATION AND PROVINCIAL AND LOCAL REGULATIONS

Both of the recent competition bills would have extended federal regulatory power into fields currently supervised by the provinces. Provincial and local government regulations cover a number of industries and professions. Ontario, for example, has legislation affecting loan and trust companies and security dealers; it also supervises the licensing of doctors, dentists, lawyers, and so on. The addition of a federal presence in these fields could cause them to be subjected to separate, and possibly conflicting, sets of legislation. As a general rule, the public interest is best served by maintaining, wherever possible, an unambiguous allocation of regulatory power in the hands of a single level of government. A related point is that the regulation of commercial activity is generally most effectively exercised by the government in closest day-to-day contact with the affected firms and their customers. This would, in many cases, be a provincial or a local government.

In addition to the problems caused by over-

laps in governmental jurisdiction, recent federal competition bills also raised a number of constitutional questions. Bill C-7, for example, would have extended the regulatory powers of the Restrictive Trade Practices Commission to cover intraprovincial trade and created remedies based on a breach of the *Anti-Combiners Act* or a Restrictive Trade Practices Commission order. These were significant extensions of federal jurisdiction into areas that have, in the past, been generally considered to be the constitutional prerogative of the provinces. They would have given the federal government power to intervene in local economic activities and would have created an entirely new range of property and civil rights.

These economic and legal questions, arising out of the recent federal legislative proposals, point out the usefulness of including, in a future bill, provisions which exempt all activities regulated by, or within, the jurisdiction of the provinces. At the same time, there is a need for each level of government to review the desirability of regulating, or deliberately not regulating, industries and services that are potentially within its jurisdiction. The effect of this would be to concentrate federal competition legislation in those areas where, to be effective, regulation must be exercised at the national level and to preserve provincial and local authority wherever decentralized control is most desirable.

V — CONCLUSION

The three problem areas considered in this article — the type of power granted to an appointed administrative agency or tribunal, the relationship of competition policy to other economic and social priorities, and the conflict and confusion caused by overlapping jurisdiction — illustrate the importance of consultation and co-ordination between the different levels of government. The need for this was clearly seen by the Economic Council of Canada in its 1969 *Interim Report*:

"...before preparing new legislation embodying major changes in competition policy, the federal government should take the initiative in proposing that discussions on competition policy and related policies be arranged between the Minister of Consumer and Corporate Affairs and appropriate provincial ministers".⁹

It is, therefore, important that the future evolution of competition policy take place in a framework of intergovernmental co-operation and be directed towards the strengthening of Canada's industrial base and its performance in world markets.

⁵ Senate Special Committee on Science Policy, p. 553.

⁶ *The regulation of local trade within Canada has always been held by the courts to be a matter of provincial concern and interest in relation to*

"property and civil rights in the province" or "matters of a purely local and private nature in the province".

The new civil remedies which would have been created by that Bill go beyond the criminal law

authority of Parliament and deal with civil rights in the province. The Bill also covered questions of evidence and procedures in the civil courts which currently fall within provincial jurisdiction.

⁹ Economic Council of Canada, p. 108.

Sudbury Area Planning Study:

Gerre Beekmans, Mark Heitshu
Local Planning Policy Branch

A Computer-Aided Land Capability Model

INTRODUCTION

When Dalton Bales, then Minister of Municipal Affairs, introduced a proposal for the Regional Municipality of Sudbury on March 15, 1971, he announced that his Ministry would undertake a regional planning study that would provide a basis for the subsequent preparation by the region of an official plan. It was intended thereby to reduce the time lag that normally occurs between the time a new regional council takes office and work on the basic studies required for regional planning begins. A small staff was assembled in 1972 and, in consultation with the intermunicipal committee of the Sudbury District Municipal Association, the concept of the Sudbury Area Planning Study was formulated, consultants were engaged, and data collection was initiated. The Regional Municipality of Sudbury came into existence on January 1, 1973. Although the region is divided into seven area municipalities, planning and zoning power is strongly centralized in the regional government. Consultation continued primarily with the Planning Committee of the Regional Council during 1973, and the study was sufficiently advanced by late 1973 that discussions were held concerning the transfer of the study to the local planning staff. The legislation establishing the Regional Municipality stipulates that the Regional Council shall prepare, adopt, and forward to the Minister for approval an official plan for the Regional Area before December 31, 1975. The Sudbury Area Planning Study is more than mere data collection, but it is not a plan. It is a tool that will enable the Regional Council to prepare a broad strategy plan as a first basic step in a regional plan.

CONCEPT

The most basic regional planning exercise was seen to be the identification of the land most suitable for future urban development. This exercise was divided into an examination of the demand for urban land and the supply of land. Subsequently, the more specific requirements for different land uses may be investigated. However, it was felt that the factors involved in determining this most broad category of "urban land" were sufficiently complicated that further refinements would prove too confusing at this stage.

The study of the demand for land is not considered particularly unusual in concept; the nature of the Sudbury Area Planning Study that makes it almost unique is the examination of the characteristics of the land using a

computer to aggregate the information and provide a weighted composite.

III — THE DEMAND FOR URBAN LAND IN THE SUDBURY AREA

Economic Base, Employment, and a Population Projection

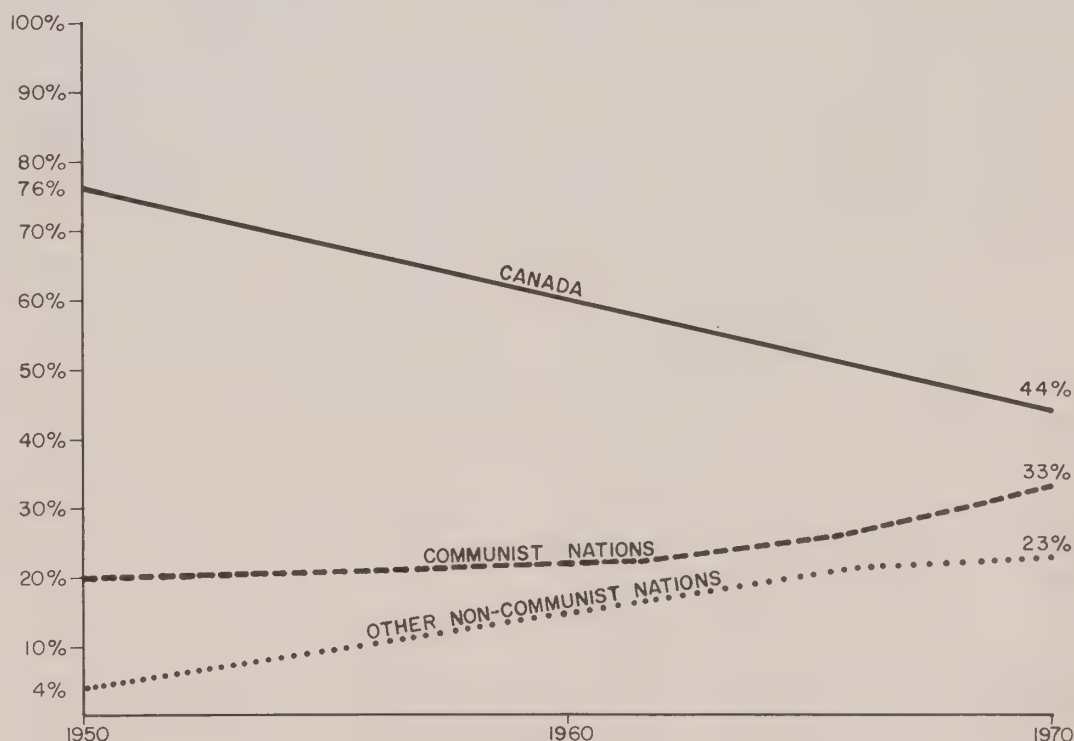
The Sudbury area is sufficiently isolated from other sizable urban centres that it forms a relatively well-defined region wherein employment, housing, and shopping must be related in complementary fashion. Very little opportunity exists for commuting in or out, and no large influx of retired persons can be foreseen to change the ratio of employed persons to population. Consequently, the future population growth of the region is likely to be closely related to the growth of employment. In the past, total employment has closely paralleled employment in the dominant nickel mining industry. Recently, however, this relationship has been tempered somewhat by a growth in trade, and institutional and service occupations, due to Sudbury having reached a threshold size sufficient to support additional services. Indications of future prospects do not suggest

the likelihood of a future reduction in the strong reliance of Sudbury on nickel mining and associated industries for employment.

To date, the growth of mining employment has not lagged significantly behind the growth of production in the industry. In the future, however, the effects of automation may become increasingly apparent, since the number of employees required to produce a given amount of nickel is likely to diminish. Thus, a rate of employment growth slightly lower than that of production growth has been assumed.

Figure 1 shows that, as recently as 1950, Sudbury was producing more than three-quarters of the world's nickel. Although local production has continued to rise, Canada's share of world production has dropped to about 44 per cent, of which one quarter now originates in Manitoba. Nickel reserves are known to be plentiful in other parts of the world; while Sudbury must mine increasingly leaner and deeper ores, the lateritic deposits in semi-tropical areas are becoming relatively more attractive to exploit. The world consumption of nickel is expected to continue to grow, however, at an increasing rate. This factor explains the continued growth of Sudbury production despite its declining share of world production.

Figure 1 — Percentage Distribution of World Nickel Production, 1950-1970



Sources: Canadian Business Service (1971).

R. J. Shank, Mineral Resources Branch, Canada, Dept. of Energy, Mines & Resources.

A cautious extension of these trends suggests a continued growth of nickel production in the Sudbury area, but at a slower rate than in the past (2 per cent prior to 1981 and 1.5 per cent from 1982 to 1991). Mining employment is expected to grow at a slightly slower rate (1.5 per cent prior to 1981 and 1 per cent from 1982 to 1991), and total employment is expected to marginally exceed mining employment (1.75 per cent prior to 1981 and 1.25 per cent after 1981). The growth of population is projected at the same rate as total employment, to give the following figures for the Regional Municipality:

1972	167,458
1982	199,100
1992	225,500

Existing Land Use

In order to obtain a relationship between population and the area of urban land used by that population, existing land-use statistics were compiled for different parts of the Sudbury region; these were then compared with typical statistics from other areas. Gross urban densities ranged from 6 persons per gross acre to 16 persons per gross acre, the latter representing the small towns with no industry and little commerce, such as Levack. A figure of 7 persons per gross acre was chosen as a reasonable figure to describe the total amount of urban land required, including parks, commercial, institutional, and industrial land.

Land Requirement

In order to accommodate a population increase of about 58,000 during the period 1972-1992, the study estimated that approximately 8,300 acres of additional urban land would be needed.

IV — THE SUPPLY OF URBAN LAND IN THE SUDBURY AREA

Within any defined study area, the supply of land available for urban development is limited in a number of ways. Some of the land is likely to be totally unsuitable for urban use and the remainder will be more or less suitable, depending on a complex number of factors, both objective and subjective. It is common for planning studies to assemble the most relevant information describing the characteristics of the land in the study area and to subsequently draw conclusions based on the planners' appreciation of the accumulated data.

The Sudbury Area Planning Study has attempted to organize this process in a manner that would permit the user to vary the value judgements that are made in assimilating the in-

formation and thereby produce alternative results. The process used may most readily be understood as an extension of the *light-table technique*, which is used to show the accumulation of several categories of mapped information by shining a strong light through the several layers of superimposed maps. The Sudbury Area Planning Study has recorded the map information on computer tapes and aggregated the information electronically to produce a composite map. In order to permit the aggregation of maps in a logically meaningful manner, it was necessary to describe each category of information in terms of its significance as a constraint to urban development. The very disparate categories were thereby related to a common denominator permitting their comparison and combination.

The Study Area

The area chosen for study comprises some 3,600 square miles, centered on the city of Sudbury and generally including the retail-trade area of that city. Extending in a radius of some 35 miles from the city, it includes the small towns of Capreol, Coniston, Falconbridge, Levack, Lively, Chelmsford, and Azilda. Its area is over three times the area of the new Regional Municipality of Sudbury. Figure 2 shows the study area and the distribution of population within it.

Inventory

The first major step in the study of the supply of land was the accumulation of inventory information, a standard step in any planning exercise. The following topics were investigated:

- topography, soils and terrain, and foundations;
- groundwater, water supply, and sewerage;
- septic tank suitability;
- solid waste disposal;
- flooding and drainage;
- air pollution;
- energy supply;
- transportation;
- airport noise and zoning;
- agriculture;
- existing land use and tenure;
- existing official plans and zoning;
- scenic qualities, recreation, vegetation, fisheries, and wildlife.

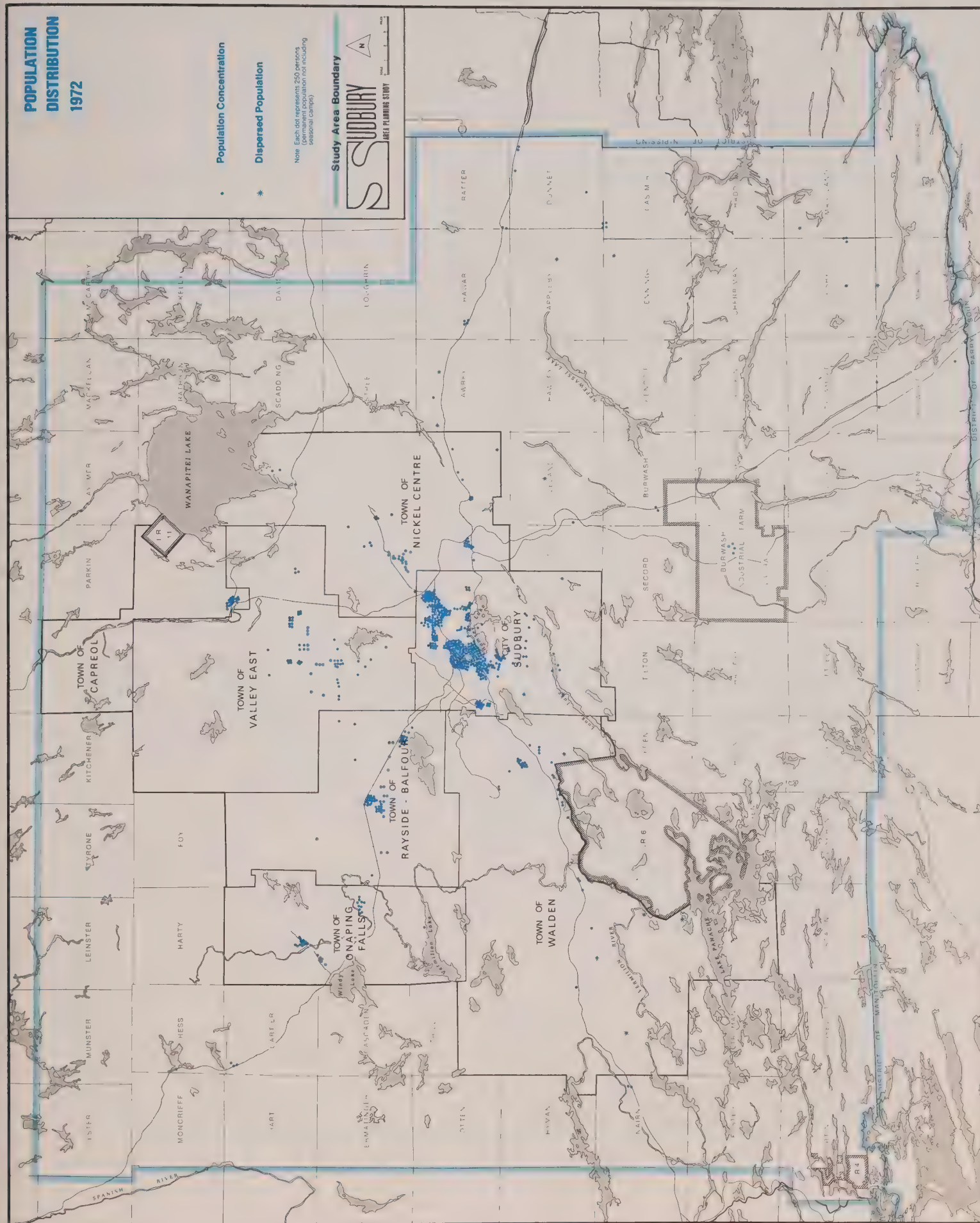
This material was presented in an atlas containing 53 maps and supporting text.

Constraint Mapping

A constraint map shows the study area divided into different "levels" of constraint, usually five, based on one particular category of information. For instance, the local services constraint map shows five levels of constraint, from "excellent" to "bad", describing the characteristics of the land for the construction of roads and the laying of subdivision sewers and water mains. Each of these levels is associated with a cost factor for the construction of local services, and the levels are thereby "rated" on the basis of cost to provide a numerical relationship between them. Similarly, each of the other constraint maps is rated, with the most severe constraint level being arbitrarily assigned the rating of 1.0 and the others rated in proportion to that maximum. The maps produced on constraint maps include the following:

- Local Services
- Water Supply Systems
- Sewage Disposal Systems
- Accessibility to Copper Cliff-Creighton
- Accessibility to Falconbridge-Garson
- Accessibility to Levack-Onaping
- Accessibility to Sudbury
- Highway Construction Cost-Capacity
- Railway Access
- Air Pollution
- Aircraft Noise
- Agricultural Capability
- Wildlife
- Fisheries
- Vegetation
- Scenic Qualities
- Recreation

The water supply and sewage disposal systems maps relate to the availability of the existing facilities to the various portions of the study area. The accessibility maps describe the relative accessibility of land to the area's major employment centres, using existing roads and assuming no variation in congestion, whereas the highway construction cost-capacity map introduces the factor of the capacity of the roads and the cost of increasing that capacity. Railway access is a positive feature for industrial land, but is negative for residential land. Air pollution is related to the major industrial polluters in the region, but is



complicated in Sudbury by the recent introduction of a high stack at Copper Cliff, which has probably significantly altered past patterns but for which insufficient data was available at the time of the study. Agricultural land in the Sudbury area is not generally of high quality; however, because there is so little of it, the land with even moderate potential could be considered valuable and therefore constrained.

The location of the groundwater aquifers was deemed to be of potentially major planning significance. The groundwater recharge areas are the region's present prime groundwater supply source and are particularly sensitive to water waste disposal. They are, therefore, crucial for future development. Other aquifers are minor discharge areas where contamination would not be critical from a regional point of view.

The environmental series of constraint maps (wildlife, fisheries, vegetation, scenic qualities, and recreation), in contrast with the remainder, were produced by combining the inventory maps in each category, assuming all mapped items to have equal importance. The levels were determined on the basis of the number of constraint items in any one area of the combined map. The aggregation of inventory maps to produce a constraint map was achieved by using

a computer, with the same general technique as used subsequently to aggregate the constraint maps themselves, as described later.

V – THE COMPUTER PROGRAM

Digitizing

The information on the constraint maps and all the environmental inventory maps and some of the other inventory maps was transformed into digital form and stored on magnetic tape. This phase was performed by the Photogrammetry Section of the Ministry of Transportation and Communications, using a Gradicon digitizing table with dimensions of about 4 ft. x 3 ft. In this operation, a cursor with a set of cross hairs was moved by the operator, following the outline of the areas shown on the original maps (contours). The location of the cursor was recorded electronically in terms of X and Y co-ordinates every 0.7 seconds on a magnetic tape. In order to position and scale each map onto a common grid, four geographical benchmarks were chosen near the perimeter of the study area. Each contour was given a unique code to identify it.

As a check on the integrity of the digitized data, the information stored on magnetic tape

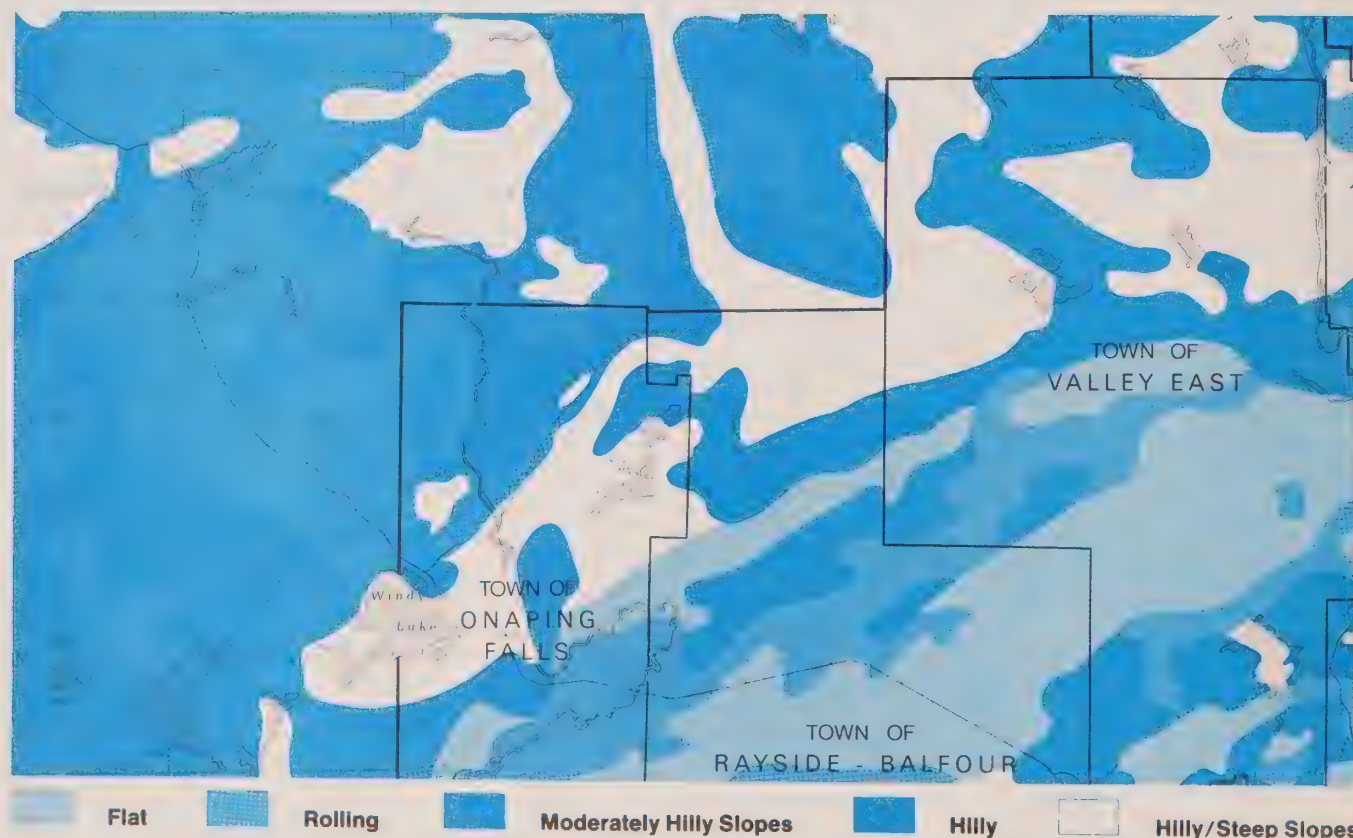
was read by a mini computer, edited, corrected and used to drive an Automatic Drafting Machine and produce an edited output tape. The output of the machine was compared to the original map and any errors or omissions corrected (see figures 3 and 4).

Gridding

The second phase of the computer operation was performed by the Computer Service Centre of the Ministry of Government Service. For practical purposes it was decided that the final output from the computer should be a computer printout with dimensions 4 ft. x 3 ft. Since the study area was about 80 miles x 60 miles, the scale of the printout would be 1 foot = 20 miles, which is close to 1:100,000. Each printed character (cell) on a computer printout covers an area of 1/10 in. x 1/8 in. The number of characters printed across a map (columns) was therefore $48 \div 1/10 = 480$, and the number of characters printed down a map (rows) was $36 \div 1/8 = 288$. Each cell represents an area of $20/120$ mile x $20/96$ mile = one twenty-ninth of a square mile, roughly 22 acres.

The gridding program divided the study area into 480 x 288 cells and placed a code from 1 to 9 in each one of the cells, determined from the data contained on the digitized tapes. This

Figure 3 – Portion of Topography Map



s repeated for each of the digitized maps, producing a grid matrix or map matrix. A check of the accuracy of the map matrix was carried out by printing the codes in each cell of the

matrix and comparing the result with the original map (see Figure 5). Slight distortions and omissions were inevitable because the smallest item of information that could be

shown on the map matrix was a 22-acre rectangle. A successfully gridded map matrix would now show up to nine different types of areas or constraint levels on a map of the study area.

Figure 4 -- Portion of Topography Map as Reproduced by Automatic Drafting Machine.

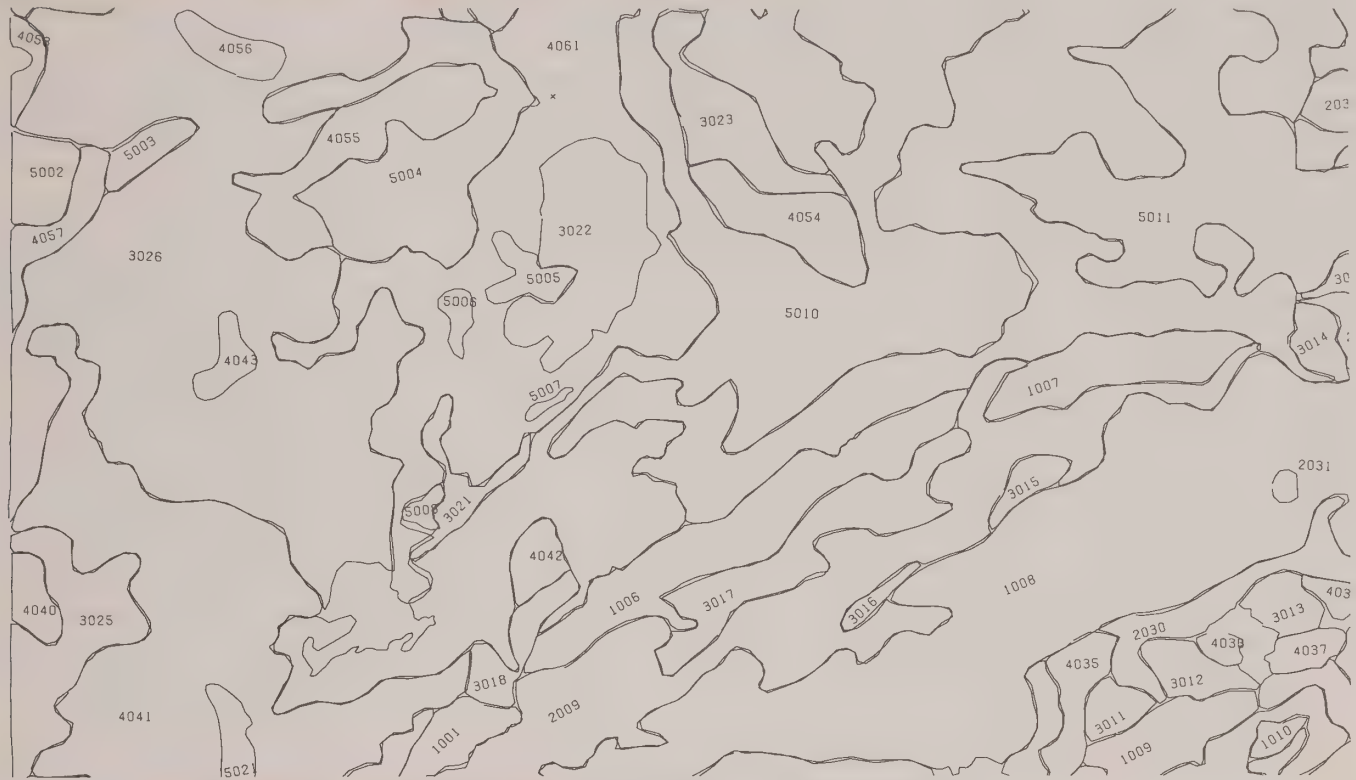
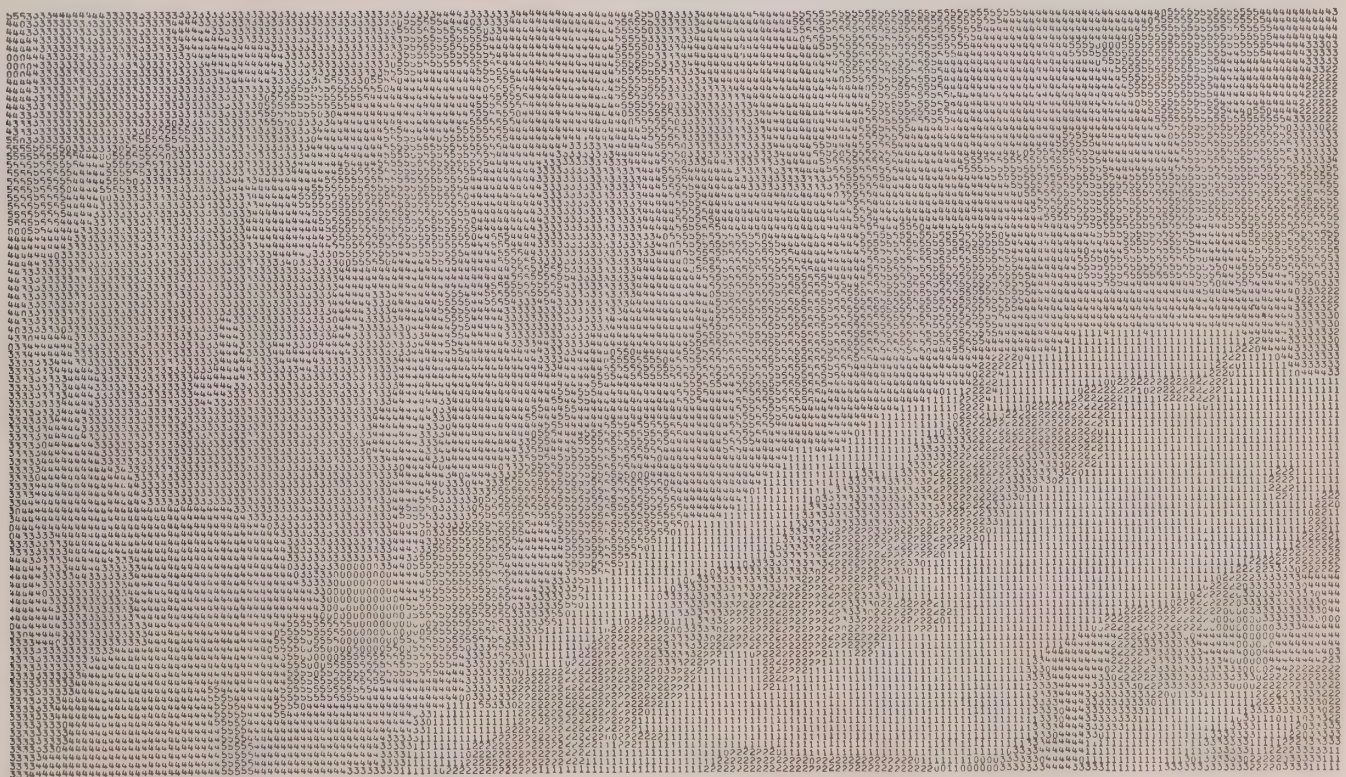


Figure 5 -- Portion of Topography Map on Computer Printout



= Flat 2 = Rolling 3 = Moderately Hilly Slopes 4 = Hilly 5 = Hilly/Steep Slopes

Computation and Display

The gridded representations of maps, having been merged and sorted, were used as input to the manipulative package. This package provides the user with a composite of any number of the gridded data or constraint maps. The user inserts the numerical ratings for the levels on each map and also the weight chosen for each map to be included in the composite. The computer calculates the resultant score for each cell and then prints out a map that represents the distribution of scores across the study area. Each score, being a product of rating \times weight, is a number comprising more than one digit. Since the computer printout can only show a single digit or symbol in each cell, the program provides for a distribution of the scores into a limited number of levels, usually five, permitting a representation by one symbol in each cell. For visual presentation, the symbols chosen are not numbers but symbols graded from light to dark, thereby providing the viewer with an easily comprehended picture of the relative degree of constraint to urban development throughout the study area (see Figure 6).

The five environmental constraint maps were produced in the manner described above, using the inventory maps as input. Each inventory item was rated equally and each map was weighted equally, reflecting the decision that it was not appropriate to introduce value judgments about the relative importance of such items as fish-spawning areas, scenic features, and bathing beaches. The resultant constraint maps simply reflected the number of items accumulated for each cell of the composite map (see Figure 7).

In addition to producing composite constraint maps in the above-noted manner, the computer program is designed to produce maps that have been "masked". This involves replacing the symbols in certain cells with a letter representing information from a different map. For instance, all the land which is already developed could be shown with a letter U (Urban) and land in the flood plain could be marked with a letter F, replacing the symbols on those cells that showed the constraint level. Statistics, such as the number of cells of each level falling in the flood plain, can readily be obtained.

Another special feature is "windowing", which restricts the computation and display to any specified rectangular portion of the study area. A program to provide a "data dump" is also available. A data dump gives the background that produced the level on each cell in a specified window. This background is made up

of the levels appearing on that cell in each of the constituent maps in a composite.

Analysis

The Sudbury Area Planning Study was envisaged by its authors as a tool to be used by the Sudbury region for the development of a broad planning strategy, not as a finished exercise. Nevertheless, in order to test its potential, an example of the application of the study methodology was deemed essential.

In this example the professionals who had been involved in the production of the data recommended the rating that should be adopted for the constraint maps relating to their specialty. The relative weights of these maps were also adopted in consultation with these participants. Although in theory a single composite map could be produced in one operation showing the best land for urban development in the study area, in practice it was found more useful to use the technique as a tool for step-by-step analysis. The possible alternatives that could be generated by varying the weights and combinations of some seventeen constraint maps are too numerous to contemplate. For practical application, it was necessary to reduce the process to a consideration of a limited number of alternatives that reflect the real choices available to the decision makers. With this in mind, the assembled information was divided into three categories:

- a) engineering data that can be relatively easily described in terms of dollar costs;
- b) environmental data relating to wildlife, scenic features, fisheries, recreation, and vegetation;
- c) other planning data on aircraft noise, air pollution, agricultural capability, and groundwater.

The first category of information was assembled to produce Composite 1, the Engineering Composite. Any disagreement about the relative weights of these maps could be referred to a somewhat objective yardstick (cost) and resolved. It was subsequently ascertained that the environmental data in category (b) did not seriously conflict with Composite 1. To have combined the environmental data with Composite 1 would have blurred the picture of the hard engineering data unnecessarily. It was therefore decided to use the Environmental Composite (Composite 3) as an environmental sensitivity check after indications of basic development priority areas had been determined from combinations of other maps. Of the category (c) data, the aircraft noise map affects only a small area and therefore has little

effect on the overall pattern, whereas the pollution map rather surprisingly does not seem to warrant a heavy weight. The recent introduction of the Copper Cliff high stack suggests that past patterns are no longer very relevant. The resulting distribution of pollutants over a much wider area appears to leave previously vulnerable areas considerably less subject to intense localized pollution. Both the aircraft noise and the air pollution maps could, therefore, be added to the engineering composite without causing a very significant change in the resultant pattern.

The agricultural capability and groundwater constraint maps, on the other hand, affect large areas of land that are otherwise relatively free of constraints. The decision on whether to emphasize one or both of these maps was seen to be of major significance. The focus of the analysis of alternatives was therefore directed to the effect of these two constraints on the composite.

Composite 2 was produced as a combination of the engineering composite (Composite 1) and the four additional constraint maps described under category (c), with a heavy weight assigned to both agriculture and groundwater (see Figure 6). Two variations of Composite 2 were also prepared, designated composites 2A and 2B. In the former, the agricultural capability of the land was excluded from consideration; in the latter, groundwater was excluded as a constraint.

Composite 1 and the three versions of Composite 2 were considered to represent the most significant alternatives for the development of the region. By trial and error it was found that in order to identify approximately the needed amount of the best (i.e. least constrained) land it was necessary to program the computer to identify the best 1 per cent of the study area at Level 1. This amounts to about 30,000 acres but that figure is reduced to something of the order indicated in the demand study (8,300 acres) when existing urban development and flood plain areas are subtracted.

An examination of the four composites indicated that some 23 different areas could be considered possible prime development areas. A number of these areas appeared favourable on all composites and would therefore be prime development areas regardless of the basic decisions placing emphasis on certain constraints. Other areas were very much influenced by such emphasis. The development of much of the Valley — the area comprising parts of the towns of Valley East and Rayside-Balfour — is indicated on all composites except 2A, which emphasizes the protection of agricultural land

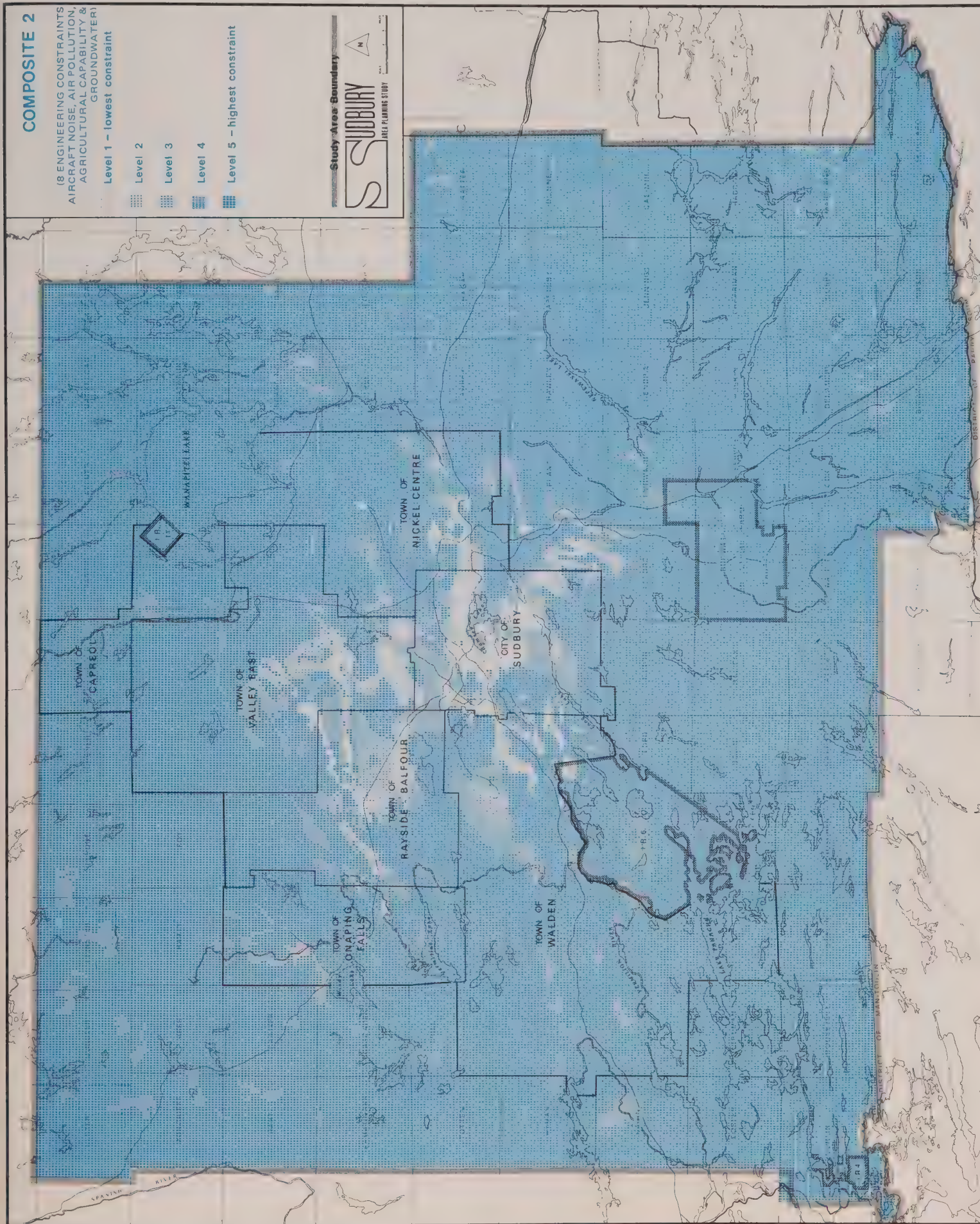
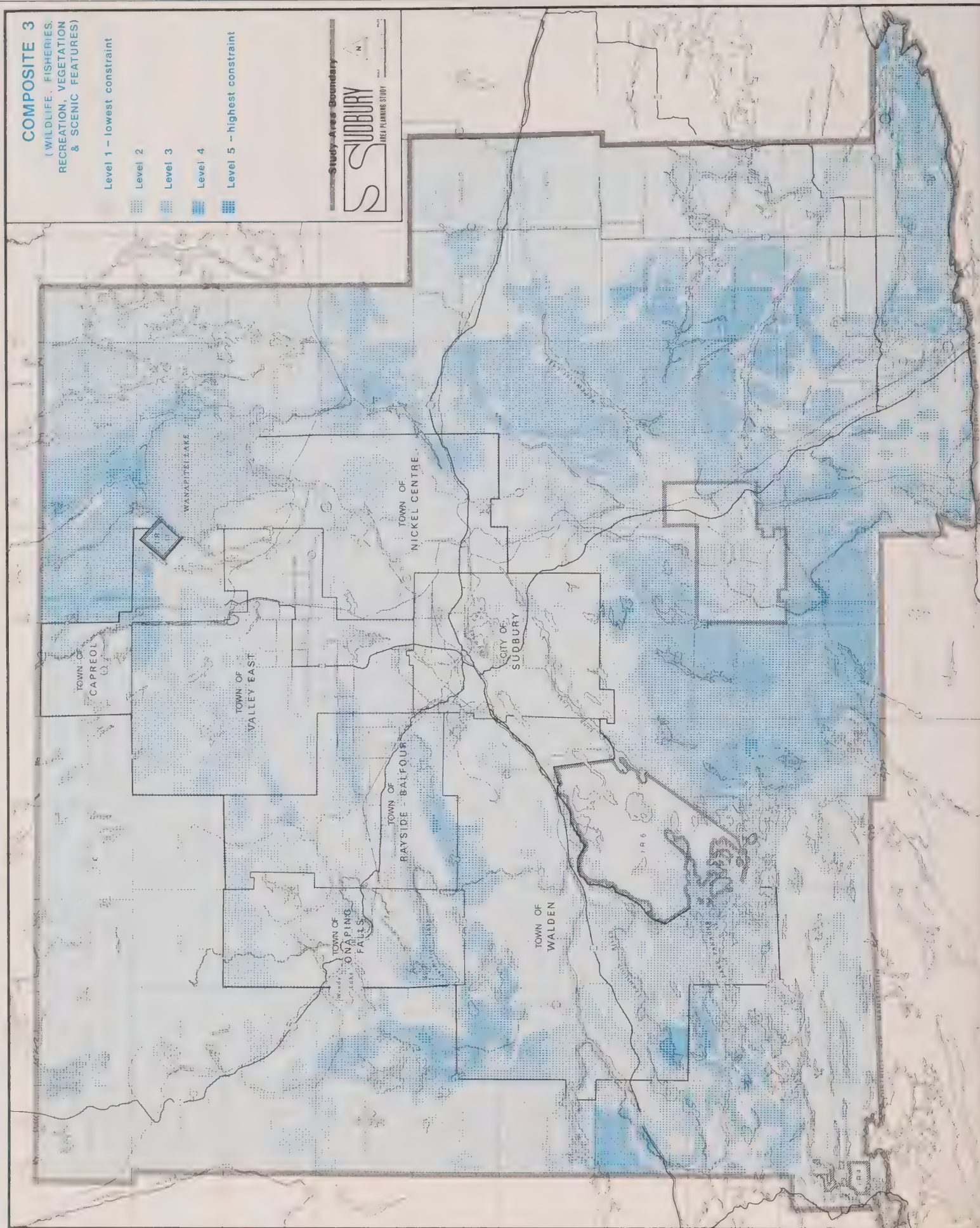


Figure 7 – Composite 3



both agriculture and groundwater are emphasized, as on Composite 2, a generally rural development along Highway 69 South is indicated. Each of the 23 potential development areas was reviewed for environmental sensitivity on the basis of Composite 3. No obvious constraint to development was discovered, although the presence of one or more sensitive environmental feature in or near these areas led the planners to include cautionary elements that would affect the type of development that should be allowed. Composite 3 was also used to make general observations about the environmental features of the region.

The next logical step in the process would be a review of the prime development areas in light of the information on flood plains and land tenure. The potential for flood control and protection of existing communities and prime

development land in the flood plain should be examined and the costs weighed against the alternatives. Large portions of the study area are owned or leased by mining interests; the degree to which this fact acts as a constraint on urban, non-mining development is obviously a factor to be considered.

VI – CONCLUSION

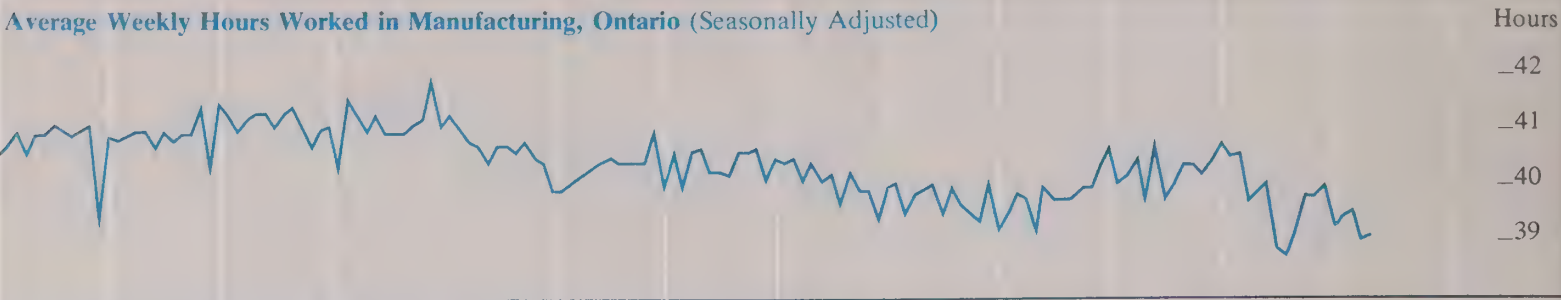
The Sudbury Area Planning Study has used computer technology to synthesize much of the widely-varying information that has some bearing on the suitability of land for urban development. In so doing, much of the reasoning process normally carried out by the planner has been systematically analyzed in order to design a computer program to assist in this function. Subjective judgements have been pinpointed as variables in the equation. Provided the basic

inventory data is reliable and the logic of its interpretation as a constraint to development is sound, the technique of this study provides a tool to clearly identify the consequences of subjective planning decisions. The capability of the computer to very quickly recalculate and print out composite maps reflecting alternative decisions about the importance of various constraints permits such alternative choices to be conveniently compared. It is recognized that factors that could not be expressed in map form as constraints to development may also be very relevant in practice, and it is not claimed that the result of the computer exercise should be accepted uncritically or rigidly. Provided the weights attached to the constraints truly reflect the feelings of the decision makers, the resultant composite should nevertheless be a sound general framework for the region's long-term planning strategy.

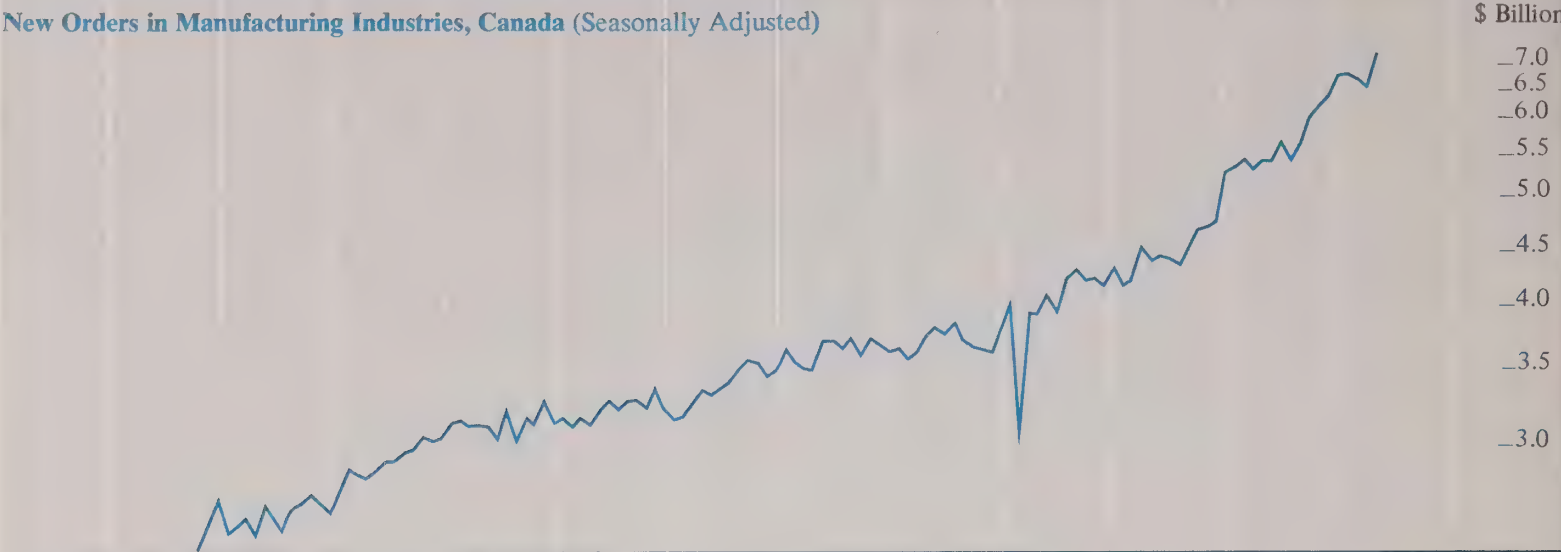
Selected Economic Indicators

Leading Indicators

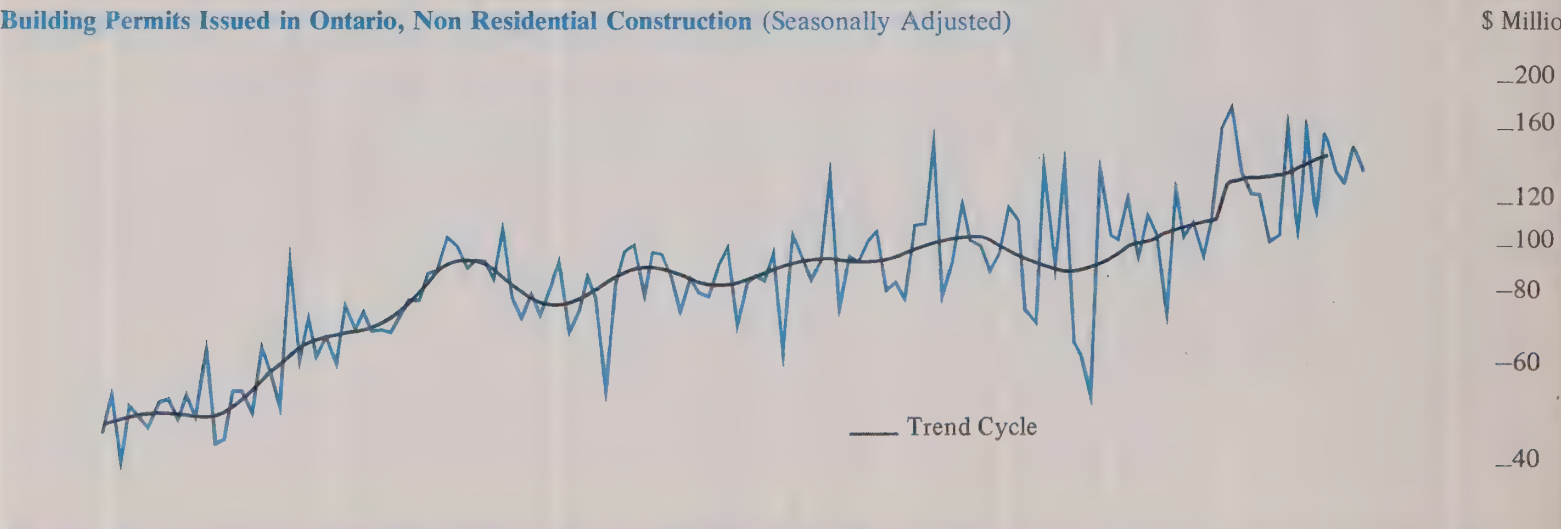
Average Weekly Hours Worked in Manufacturing, Ontario (Seasonally Adjusted)



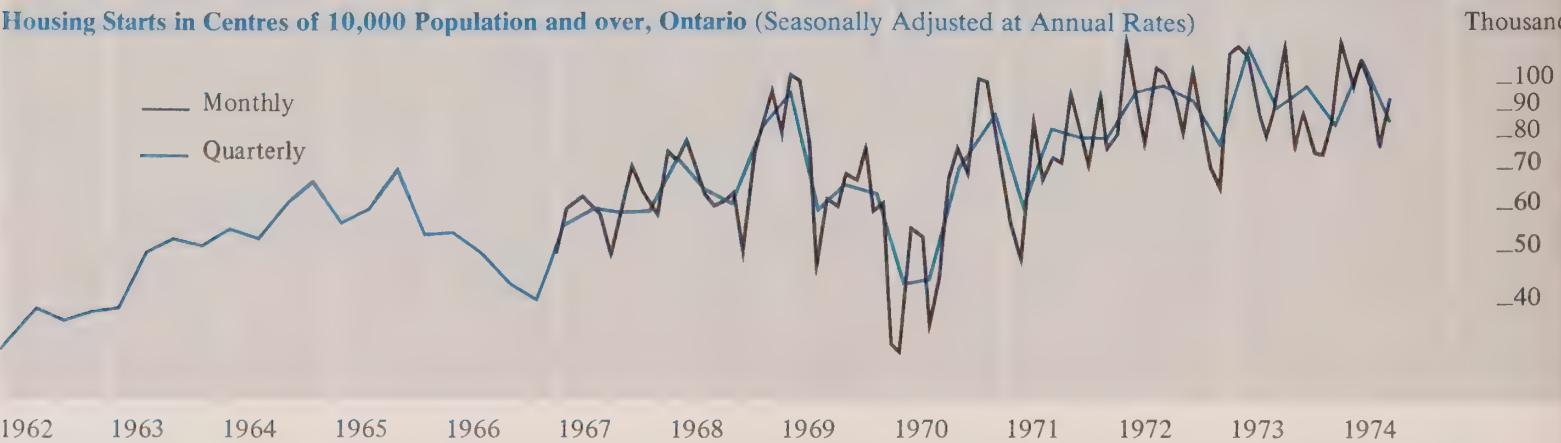
New Orders in Manufacturing Industries, Canada (Seasonally Adjusted)



Building Permits Issued in Ontario, Non Residential Construction (Seasonally Adjusted)



Housing Starts in Centres of 10,000 Population and over, Ontario (Seasonally Adjusted at Annual Rates)



Leading Indicators

Total Money Supply, Canada (Average of Wednesdays, Seasonally Adjusted)

\$ Billion
Scale L1
_45
_40
_35
_30
_25

Toronto Stock Exchange Industrial Index (1956 = 100, Not Seasonally Adjusted)

Index
Scale L2
_240
_220
_200
_180
_160
_140
_120

Coincidental and Lagging Indicators

Gross National Product, Canada (Quarterly, Seasonally Adjusted at Annual Rates)

\$ Billion
Scale L1
_120
_110
_100
_90
_80
_70
_60
_50

— Current Dollars
— Constant (1957) Dollars
new series
constant (1961) dollars

Average Hourly Earnings in Manufacturing, Ontario (Seasonally Adjusted)

Dollars
Scale L1
_4.00
_3.50
_3.00
_2.50

1962 1963 1964 1965 1966 1967 1968 1969 1970 1971 1972 1973 1974

Coincidental and Lagging Indicators



	1973						1974							
	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
Leading Indicators														
Average Weekly Hours Worked in Manufacturing	39.8	40.1	38.9	39.2	39.9	39.9	39.7	40.0	39.3	39.5	39.7	39.2	39.3	39.0
New Orders in Manufacturing Industries ^c	5,526.2	5,441.6	5,688.5	5,470.3	5,747.5	5,980.4	6,163.7	6,415.2	6,504.7	6,521.0	6,484.7	6,366.6	6,806.2	
Building Permits Issued in Ontario, Non-Residential Construction	126.9	116.1	121.1	157.5	119.2	164.0	131.4	162.8	137.1	128.7	150.7	136.7	196.6	
Urban Housing Starts (Annual Rate)	82,300	93,100	123,900	76,900	91,500	77,600	76,200	88,600	118,100	99,800	113,200	100,100	78,700	96,900
Money Supply ^c	45,689	46,126	46,779	47,346	47,898	48,619	48,888	50,052	50,797	51,570	51,949	52,576		
T.S.E. Industrial Index ^u	205.9	208.4	219.3	215.2	225.3	237.4	211.4	213.7	215.0	222.9	215.3	198.2	187.5	183.4
Business Failures ^u	107	85	80	60	99	93	86	89	90	100	73	104	95	78
Business Failures — Liabilities ^u	8.6	4.9	4.9	3.5	8.9	11.7	6.1	4.5	9.9	5.4	4.8	4.7	33.7	4.1
Coincidental and Lagging Indicators														
Gross National Product ^c (Annual Rate)		116,136			120,580			125,908			132,060			
Average Hourly Earnings in Manufacturing	4.01	4.04	4.08	4.03	4.13	4.23	4.10	4.21	4.25	4.28	4.32	4.36	4.43	4.46
3-Month Treasury Bill Rate ^{c,u}	5.18	5.48	5.74	6.18	6.50	6.53	6.43	6.35	6.22	6.07	6.51	7.64		
Cheques Cashed in Clearing Centres ¹	9,703	9,745	10,669	10,375	10,273	10,720	11,354	11,027	11,928	11,281	11,667	11,775	13,328	
Retail Trade	1,168	1,187	1,224	1,221	1,232	1,228	1,243	1,240	1,262	1,323	1,303	1,312	1,395	1,381
Labour Force	3,487	3,529	3,483	3,518	3,492	3,558	3,567	3,579	3,598	3,616	3,628	3,639	3,662	3,646
Employed	3,351	3,397	3,349	3,375	3,335	3,404	3,431	3,432	3,449	3,461	3,475	3,508	3,520	3,515
Unemployed	136	132	134	143	157	154	136	147	149	155	153	131	142	131
Unemployed as % of Labour Force	3.9	3.7	3.8	4.1	4.5	4.3	3.8	4.1	4.1	4.3	4.2	3.6	3.9	3.6
Wages and Salaries	2,121	2,133	2,133	2,138	2,194	2,227	2,247	2,262	2,300	2,320	2,373	2,383	2,410	
Index of Industrial Employment	140.6	141.5	142.8	139.4	142.1	144.7	143.0	143.7	144.4	146.3	146.7	146.5	146.9	147.9
Index of Industrial Production ^c	212.5	215.2	214.9	208.7	212.7	217.0	218.1	217.7	219.9	221.8	226.1	223.5	221.4	222.5
Total Manufacturing ^c	209.1	211.6	211.6	203.9	208.1	212.9	213.6	213.6	218.7	218.8	224.1	221.0	218.4	219.2
Non-Durables ^c	183.0	184.9	184.6	176.5	179.4	182.8	186.8	186.4	188.9	190.8	196.2	194.1	190.8	194.3
Durables ^c	242.0	245.6	245.8	238.7	244.4	250.9	247.5	248.1	256.3	254.3	259.4	255.0	253.2	250.7
Mining ^c	212.9	212.4	206.0	205.3	210.6	217.3	216.8	216.0	202.0	212.2	211.6	212.9	209.4	214.0
Electric Power and Gas Utilities ^c	241.2	250.6	256.9	254.4	255.2	252.0	258.6	254.7	258.7	262.2	266.8	262.2	266.0	264.5
Primary Energy Demand (Annual Rate)	78.52	79.05	79.79	81.60	79.85	79.23	79.97	78.54	80.27	81.20	80.99	80.95	83.33	
Exports (including re-exports) ^c	2,082	2,055	2,134	1,940	2,069	2,212	2,404	2,205	2,422	2,427	2,628	2,370	2,691	2,563
Imports ^c	1,933	1,877	1,949	1,915	1,932	2,100	2,150	2,164	2,222	2,389	2,509	2,230	2,519	2,640
Unclassified Indicators														
Foreign Exchange Reserves ^{c,u}	5,013	5,011	4,939	4,743	4,690	4,848	4,811	4,854	4,939	5,282	5,192	53,167		
Industrial Materials Price Index ^{c,u}	361.2	372.9	394.7	420.3	407.7	419.9	455.4	463.9	466.0	476.9	484.5	491.7		
Consumer Price Index ^{c,u}	148.4	149.7	151.0	153.0	153.9	154.3	155.5	156.4	157.6	159.2	160.8	161.9	164.6	166.7
Toronto ^u	142.5	143.6	144.6	146.2	146.8	147.0	148.0	148.5	150.2	152.0	153.1	154.2	157.4	159.5
Ottawa ^u	144.0	145.3	146.7	148.9	149.5	150.5	152.3	153.4	154.5	155.9	157.3	158.4	160.0	162.1
Thunder Bay ^u	113.2	114.2	115.5	117.6	119.2	117.9	118.5	119.0	119.6	120.9	122.0	123.6	125.6	127.2
Purchasing Power of 1961 Consumer Dollar ^{c,u}	0.67	0.67	0.66	0.65	0.65	0.65	0.64	0.64	0.63	0.63	0.62	0.62	0.61	0.60

^cStatistics for Canada.^uNot seasonally adjusted.¹Ontario less Toronto.

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April	"The New Economics" and the Province of Ontario
May-June	Progress Under the Automotive Free Trade Agreement: Some Comments
July	Ontario's New Housing Program
Aug.-Sept.	Economic Education
Oct.-Nov.	The Distribution of Personal Income in Ontario and the Ten Economic Regions
Dec.	Canada and the U.S. Guidelines

1967

Jan.-Feb.	(Annual Review)
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May-June	Soybeans in Ontario: Production, Utilization and Prospects
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1968

Jan.-Feb.	The Economy in 1967
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1971 (continued)

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1972

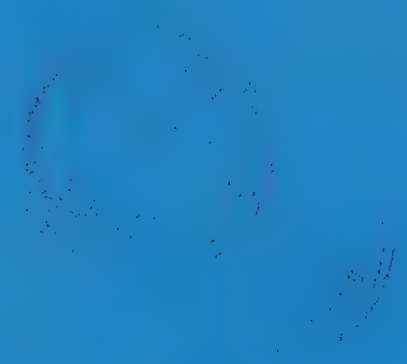
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Mar.-Apr.	Ontario's Property Tax Credit Plan
May-June	The Ontario Government and the Pickering Airport Site
Sept.-Oct.	An Analysis of Mortality Patterns in Ontario
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1973

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1974

Jan.-Feb.	The Oil Crisis and World Trade
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Ministry of Treasury, Economics and Intergovernmental Affairs

Hon. John White, Minister

Hon. Donald Irvine, Minister Without Portfolio

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Selected Economic Indicators

10-12

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Hon. Donald Irvine, *Minister Without Portfolio*

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About the Review

The first article in the July/August issue examines the effect of immigration on housing policy. The demand for housing units resulting from net migration in the 1969-1973 period is estimated at 15 per cent of all new housing units for the Province as a whole and 25 per cent for the Toronto Census Metropolitan Area. The remaining increase in demand is accounted for by the natural increase in the population, and substantial improvements in housing quality.

While this level of demand does not seem to have strained the housing industry's ability to keep supply reasonably in balance with demand, the case for 1974 is less clear. Because of short-term supply shortages, a high level of migration to Toronto could exacerbate a difficult housing situation. Advance knowledge of immigration trends is, therefore, important in predicting the necessary scope of provincial government programs such as housing if they are to meet their objectives.

The second article examines some of the major aspects of agricultural labour problems in Ontario and notes that although wages have improved in the past few years, there remains a considerable shortage of trained permanent farm workers. The article examines this situation as well as some major issues affecting working conditions of farm employees: social insurance, employment standards, housing, social position, and labour relations. Also discussed are the demand for and supply of seasonal farm workers in Ontario, their earnings and working conditions.

The short analysis of the present situation and of the effects of farm mechanization, is followed by an outline of the involvement of the federal and provincial governments in resolving farm labour problems. In this respect, the article gives a short description of the newly established Farm Labour Pools.

Indicator Charts, Pages 10-12

Fluctuations in aggregate economic activity — commonly used to define business cycles — do not necessarily correspond with fluctuations in the individual activities which make up the aggregate. Instead different indicators of economic activity may vary with respect to both their rates of growth and the timing of their peaks and troughs: some may grow more rapidly than others, some change direction sooner.

Those activities which tend to assume a direction in advance of the aggregate — because they relate to future rather than present production — are referred to as leading indicators, and are widely used to anticipate the short-run future course of the overall economy. The charts on pages 10, 11 and 12 in the *Ontario Economic Review* present a number of these leading indicators, as well as several which are coincidental to or lag behind the aggregate, to provide for the reader an opportunity to make such an evaluation.

While comparisons of the timing and direction of general changes in the various indicators can readily be made, great care must be exercised in making such a comparison of the amplitude of fluctuations. Of the three vertical scales used — 'A' (arithmetic) and 'L1' and 'L2' (logarithmic scales with one and two cycles respectively over a given vertical distance) — only the logarithmic scales can be used to compare relative changes in different indicators. *And this applies only when all series being compared are on the same logarithmic scale.* In such a situation all parallel lines represent equal rates of growth, the exact rate of growth being determined by the slope of the line.

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The Effect of Immigration on Housing

John Hoicka, *Economist*
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INTRODUCTION

Immigration is one of two responsibilities for which *The British North America Act* assigns concurrent jurisdiction to the federal and provincial governments.¹ As a result, the Province of Ontario has had an active immigration policy for many years, and opened its first immigration office in London in 1908.²

The major role in immigration policy has, however, been played by the federal government. In recent years, federal immigration policy has been associated most closely with manpower policy. As a result, the criteria used to select immigrants have utilized a points system emphasizing such manpower-related factors as skills in demand in Canada, educational attainments, and a firm job offer. Revisions to the points system early this year focus even more closely on manpower issues, such as the availability of jobs in specific regional employment markets.³

Immigration, however, also affects the development of social welfare policies, which are primarily the responsibility of the provinces. A high level of immigration can have a substantial impact on the quantity, type, and quality of services that provinces and municipalities can and should offer. As examples, immigrants frequently need counselling and other services to adapt to their new communities, and their children need special arrangements for education, e.g., language training.

The federal government has responded to provincial interest in immigration by inviting comments on their forthcoming Green Paper on immigration. It has, in addition, indicated that it would consider provincial viewpoints in formulating a revised immigration policy.

This article presents some preliminary estimates of the effect of immigration on housing in Ontario for the past five years and projects possible effects for 1974. There are two main concerns:

- the proportion of increased demand for housing accounted for by immigration;
- the importance of precise estimation of immigration.

EFFECT OF NET MIGRATION ON HOUSING DEMAND, 1969-1973

It is essential to point out that housing demand is affected by net migration, not immigration *per se*. Net migration to Ontario is a residual: the sum of immigration less emigration combined with net inter-provincial migration. The

residual figure, net migration, rather than the gross figure, immigration, corresponds to a residual — net additions to housing demand. Immigration, however, is the component of net migration most susceptible to government action; an increase in immigration results in substantially the same increase in net migration.

Table I indicates estimates of net migration to Ontario for the past five years, 1969-1973, and shows an annual average of 63,000. Since immigrants are far more likely to use boarding facilities and shared accommodation than native-born Canadians and earlier immigrants, while emigrants probably give up relatively comfortable housing facilities, it can be assumed that each five (net) migrants creates a demand for one additional household unit. This figure compares with the Ontario average of 3.3 persons per household in the 1971 Census of Canada.

The annual demand for housing units created by net migration in the five-year period, as indicated in Table I, ranged from 10,000 to 18,000 units, with an average of 12,600 units, i.e., 15 per cent of new housing units produced in Ontario during the period.

This percentage seems small, given that net migration accounted for 46.5 per cent of the total population increase of 677,000 during the period. The explanation is that the natural increase (births less deaths) accounted for about an additional 25 per cent of the increase in the housing supply, while the remaining 60 per cent can be attributed to improvements in housing quality. Between 1961 and 1971, for example, the average number of persons per room declined from 0.67 to 0.60, according to Census of Canada figures. In addition, the number of multiple family households declined, and

the proportion of single individuals who set up their own households rather than staying home or boarding increased dramatically. The largest such increase — 462 per cent — was for single males under 25 years of age; the corresponding demographic increase was only 68 per cent.

Initially, the demand for dwelling units by (net) migrants is mainly for apartment accommodation rather than the more expensive single family dwelling units. Over a period of several years, of course, it is to be expected that immigrants would gradually improve their situations in Ontario, in part by moving to accommodation more like that of native-born Canadians. The long-run impact of net migration for the period, therefore, exceeds 15 per cent of increased housing supplied by a comfortable margin. Perhaps 10 per cent of the total 60 per cent attributed to increases in the quality of housing would be associated with immigrants from earlier years upgrading their housing.

About 55 per cent of immigrants to Ontario list their intended destinations as the Toronto Census Metropolitan Area (CMA). There is reason to believe, however, that recent immigrants are considerably more likely to move than native-born Canadians, primarily in order to improve their opportunities for satisfactory employment or housing. The moves by new immigrants tend to be towards the larger cities, particularly Toronto. For this reason, it can be assumed here that two-thirds of Ontario's immigrants are attracted to the Toronto CMA within a relatively short time of arrival.

Since accurate records of emigration and inter-provincial migration are not available, it has been assumed that two-thirds of all those leaving Ontario are from the Toronto CMA. It would follow that net migration (exclusive of

Table I — Effect of Net Migration on Housing Demand, Ontario, 1969-1973

Year	Net Migration ¹	Estimated Housing Units Required ²	Total Housing Completions ³	% of New Demand Resulting from Net Migration
1969	51,200	10,240	80,236	12.8
1970	90,300	18,060	69,331	26.0
1971	73,100	14,620	74,149	19.7
1972	52,400	10,480	96,438	10.9
1973	47,900	9,580	98,262	9.7
AVERAGE	62,980	12,596	83,683	15.1

Source: 1. Ministry of Treasury, Economics and Intergovernmental Affairs, *Economic Analysis Branch*.

2. See text.

3. CMHC, Canadian Housing Statistics, 1973.

intra-provincial migration) to the Toronto CMA averaged over 40,000 a year between 1969 and 1973. Also, on the basis of five net migrants per household, demand arising from net migration to the Toronto CMA was responsible for over 8,000 units a year, and about one-quarter of all housing units completed in the area during the five-year period.

Housing demand from net migration between 1969 and 1973 appears to have had little impact on prices during the period. Immigrant demand for single family housing, where prices rose most rapidly, appears to have been very small. While immigrants provided significant demand for apartments, rents appear not to have risen substantially. A lower rate of immigration, might, nonetheless, have had some moderating effect on housing prices because of the disproportionate impact of demand at the margin as well as on the declining apartment vacancy rate. The reduction in the vacancies as well as upgrading of housing by immigrants already in the Toronto CMA may yet, therefore, have an effect on prices.

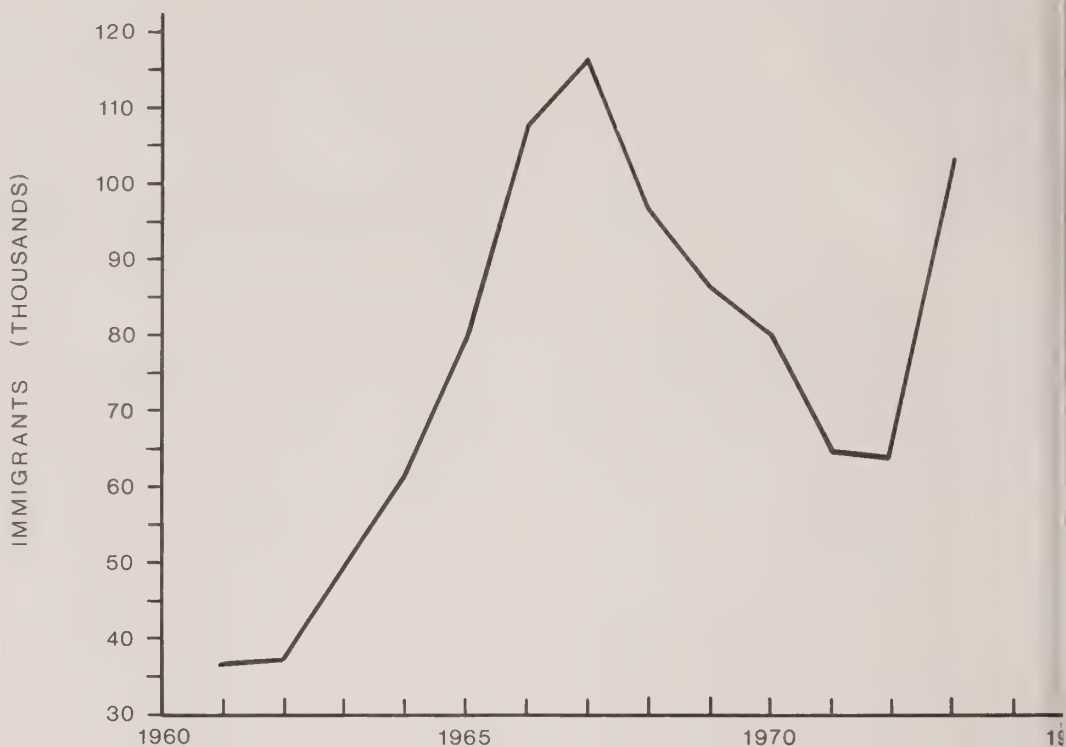
III — EFFECT OF NET MIGRATION ON HOUSING DEMAND, 1974

Estimates of immigration to Canada and Ontario in 1974 are quite varied as a result of a number of substantial changes. On the one hand, interest in emigration to Canada appears to have risen sharply in Western Europe and the Caribbean. Statements by Mr. Andras, Minister of Manpower and Immigration, however, indicate that the federal government is imposing a stricter points system on immigrants. The new system is designed to accept only those immigrants who have skills in short supply in the specific regions to which they plan to emigrate.⁴ These changes in the numbers wishing to emigrate and changes in Canadian policy may affect the level of immigration in 1974 to Ontario, particularly to specific areas such as the Toronto CMA.

Estimation of immigration is important for predicting the need for provincial services and expenditure. As Figure I shows, immigration to Ontario varied dramatically in the last decade, from a low of 37,000 to a high of 117,000. These figures can be compared to an average natural increase for Ontario of about 75,000 per year.

Even more difficult is the task of estimating net migration. Emigration to other countries has probably declined somewhat from the 45,000 estimated for Ontario in 1973. Similarly, 1973 was unusual in that net provincial

Figure I — Immigration to Ontario, 1961-1973¹



1. Immigrants declaring Ontario as their place of residence.

2. Immigration for 1973 includes a number of individuals who entered the country before 1973 and were processed in 1973 under revised regulations.

Source: Ministry of Treasury, Economics and Intergovernmental Affairs, Economic Analysis Branch

migration to Ontario was negligible. Assuming that these rates of emigration and net provincial migration to Ontario continue for 1974, net migration, based on immigration totals for the past ten years as shown in Figure I, could range from zero to 75,000.

One method of estimating the effect of increased immigration, under the tight housing conditions existing at present, with apartment vacancy rates below 1 per cent in the Toronto CMA and other urban areas⁵, is to assume that the price mechanism bears the entire burden of persuading people to reduce their use of space sufficiently to accommodate newcomers. Assuming an average price elasticity⁶ of -0.16, each increment of 10,000 immigrants would lead to an increase in rents of about 4.2 per cent beyond what would normally be expected. The effect on the Consumer Price Index (CPI) would be a 0.35 per cent increase⁷ in the Toronto CMA for each such increment.

If net migration is no higher than in 1973, there may still be some pressure on the housing

market in the Toronto CMA. Immigration policy, of course, is not dependent upon housing considerations, and net migration can be expected to be considerably higher. The increment in housing demand, however, cannot be met by increased construction immediately since apartment buildings require, on average, more than one year of construction time.

Table II traces the effect of various levels of net migration on housing demand and price. Of particular interest is the possibility of strong increases in rents in the Toronto CMA. If net migration in 1974 were only 20,000 to the Toronto CMA, it is probable that the demand for apartment accommodation could be met without significant strain. Higher levels of net migration could result in a tight market and consequent price increases. As Table II indicates, the CPI could increase by as much as 1 per cent as a direct result of rent increases of 1 per cent (beyond that normally expected) if net migration were to rise to the highest level for the last ten years.

Table II — Potential Effects of Net Migration on Housing Demand, Ontario, 1974

	Low	"Most Probable"	High	Very High
Ontario				
Net Migration	30,000	45,000	60,000	75,000
Net Housing Demand (units)	6,000	9,000	12,000	15,000
Toronto CMA				
Net Migration	20,000	30,000	40,000	50,000
Net Housing Demand (units)	4,000	6,000	8,000	10,000
Per Cent of Apartment Stock	1.3	2.0	2.7	3.3
Per Cent Change in Rents	—	4.2	8.3	12.5
Per Cent Change in Consumer Price Index	—	0.35	0.7	1.05

Source: Ministry of Treasury, Economics and Intergovernmental Affairs, Policy Planning Branch.

It is quite probable, of course, that apartment rents would not rise by the full amounts estimated above. Restraints (mandatory or otherwise) in raising rents would, however, be accompanied by reluctance to allow sub-leasing, greater scrutiny of prospective tenants, and a

greater propensity to evict tenants who did not meet lease requirements. These practices might well inflict more distress on low income individuals, students, and families with children, than would an across-the-board rent increase.

Section 95 of *The British North America Act* states:

"In each Province the Legislature may make Laws in relation to Agriculture in the Province, and to Immigration into the Province; and it is hereby declared that the Parliament of Canada may from time to time make Laws in relation to Agriculture in all or any of the Provinces, and to Immigration into all or any of the Provinces; and any Law of the Legislature shall have effect in and for the Province as long and as far only as it is not repugnant to any Act of the Parliament of Canada."

See R. McGregor Dawson, *The Government of Canada*, 4th Ed., revised by Norman Ward (Toronto: University of Toronto Press, 1963), p.569.

² For a short history of Ontario's immigration policies and programs, and particularly those of the post World War II era, see Chapter 8 of: Freda Hawkins, *Canada and Immigration: Public Policy and Public Concern* (Montreal: McGill-Queen's University Press, 1972), p.201 ff.

³ The Honourable Robert Andras, "New Immigration Regulations", Press Release, February 21, 1974 (Ottawa: Office of the Minister of Manpower and Immigration).

IV — CONCLUSION

Immigration to Ontario for the past five years has contributed about 15 per cent to net housing demand, particularly for apartment accommodation. This level does not seem to have strained the housing industry's ability to keep apartment supply reasonably in balance with demand, and consequently housing prices and availability seem not to have been affected significantly. On the other hand, because of short term housing supply shortages in 1974, migration to Toronto from abroad, other provinces, and other parts of Ontario may exacerbate a difficult housing situation.

The Ontario Government has mounted a series of programs such as the Home Ownership Made Easy Plan, public and student housing, and support of the condominium concept, to increase housing supply in order to resolve the housing problem. One difficulty incurred in relating new housing supply to increased demand is to estimate how rapidly demand is increasing as a result of net migration. As the article indicates, estimation of immigration trends is frequently important in predicting the necessary magnitude of housing and other provincial government programs if these programs are to meet their objectives.

⁴ The Honourable Robert Andras, op. cit. (Note 3).

⁵ Central Mortgage and Housing Corporation, Apartment Vacancy Survey, July 1974.

⁶ Mahlon R. Straszheim, "The Demand for Residential Housing Services", Discussion Paper No. 192 (Mimeo: Harvard Institute of Economic Research, June 1971), p. 24.

⁷ Rent payments comprise 8.276 per cent of the consumer price index. See Statistics Canada, "Appendix 1: 1967 Weighting Diagram of the Consumer Price Index (1)", *The Consumer Price Index for Canada*, (Ottawa: Information Canada, June 1973), p.32.

Agricultural Workers in Ontario

Laszlo Bodnar, *Economist*
Policy Planning Branch

I – INTRODUCTION

The growing demand for agricultural products has enhanced the importance of Ontario's agriculture industry. However, a primary condition for maintaining a thriving agricultural sector is to secure a sufficient number of qualified farm workers. Farm mechanization and technological advancement have undoubtedly reduced labour requirements and will continue to do so; but no matter how much capital or machinery is available to the farmer, crops and other farm products cannot be grown, harvested, and brought to market without the use of human labour.

The availability of qualified farm labour is a critical factor influencing the volume and cost of production. It has a direct bearing on the quantity and price of food and, therefore, is extremely important to Canadian consumers and exporters of agricultural products. Both farmers and government agencies are increasingly concerned about the growing difficulty of recruiting agricultural workers in Ontario.

This report analyzes some of the major manpower concerns in Ontario agriculture, attempts to quantify labour shortages, identifies the reasons for these shortages, and proposes some measures to alleviate difficulties.

II – THE IMPORTANCE OF LABOUR COSTS IN ONTARIO AGRICULTURE

Table I compares wages in relation to total farm operating costs in Ontario. It shows that in the period 1961 to 1967 in Ontario, the relative importance of farm wages as a percentage of farm operating expenditures declined from 16.4 per cent to 12.7 per cent. The percentage increased again in 1968 and 1969; however, since 1969, the significance of farm wages has been visibly reduced.

According to 1971 Census figures,¹ the number of farms in Ontario fell from 121,333 in 1961 to 94,722 in 1971. In the same period, the number of tractors increased from 150,046 to 165,752, grain combines from 22,387 to 25,320, and pick-up balers from 28,061 to 39,348. It is very likely that the increased mechanization of Ontario agriculture is the main reason for the relative decline in farm labour costs.

Depending on the type of farm operation, the percentage of wages, as a factor of production, shows widespread variation. According to the estimates of the Ministry of Agriculture and Food, wages account for 35 to 38 per cent of total production costs of processing tomatoes,

Table I – Wages in Ontario Agriculture, 1961-1973

Year	Wages as a Percentage of Farm Operating Expenditures	Index (1961 = 100.0)
1961	16.4	100.0
1962	16.1	98.2
1963	14.9	90.9
1964	13.9	84.8
1965	13.6	82.9
1966	12.8	78.7
1967	12.7	77.4
1968	13.6	82.9
1969	13.8	84.1
1970	12.5	76.2
1971	12.6	76.8
1972	12.3	75.0
1973	11.3	68.9

Source: *Statistics Canada*, Farm Net Income.

23 to 25 per cent of flue-cured tobacco, and some 10 to 12 per cent of fluid milk production.

It should be pointed out that, although the relative position of labour costs has declined because of the increased use of farm machinery, human labour has remained and will remain (in the foreseeable future) an essential factor of production in agriculture.

III – PROFILE OF AGRICULTURAL WORKERS IN ONTARIO

Farm workers are classified into two major categories: permanent and seasonal. According to 1971 Census figures, in 1970 a total of 12,629 paid permanent (year-round) workers was reported in Ontario. In the same year, a total of 800,426 weeks of seasonal work was reported, equivalent to some 50,000 people working for a four-month period. However, the number of seasonal agricultural workers may have been considerably higher. The Department of Manpower and Immigration estimated that in 1973, during the peak period – July to September – some 60,000 to 65,000 people were employed on Ontario farms.²

Permanent Labour in Ontario Agriculture

In 1970, some 57 per cent of the permanent agricultural workers in Ontario were employed on livestock and poultry farms, and a similar percentage probably exists today. Of major concern to the supply of labour is the shortage

of trained dairy herdsmen. Early in 1974 the Ontario Ministry of Agriculture and Food registered some 150 positions available on dairy farms, although the actual shortage is probably substantially higher. It is assumed by officials of the same ministry that many dairy farms would increase their operations substantially if sufficient dairymen were available.

Earnings and Working Conditions

There is some uncertainty concerning the earnings and working conditions for permanent agricultural workers in Ontario. Data from Statistics Canada refer to the average wage of farm workers, which is derived from a very small sample that lumps different types of farm workers together. Therefore, farm wages are considered only as estimates.

As can be seen from Table II, the average monthly wage of permanent farm workers in 1961 was \$120 with board, and \$164 without board. In 1973, the average monthly farm wage was reported at \$365 with board, and \$422 without board.

Table II – Average Monthly Wages of Male Farm Workers, Help as of August 19, 1961-1973

Year	With Board	Without Board
1961	\$120	\$164
1962	122	165
1963	127	172
1964	136	185
1965	153	216
1966	171	239
1967	185	256
1968	233	289
1969	250	300
1970	267	309
1971	277	314
1972	295	347
1973	365	422

Source: *Statistics Canada*, Farm Wages in Canada.

Estimates by the Ministry of Agriculture and Food put dairy herdsmen's earnings at between \$400 and \$450 a month in early 1974; in addition, married men received free housing, fuel, electricity and milk for their families. The work week ranged from 60 to 65 hours. Workers on beef, swine, and poultry farms earned \$400 to \$500 a month and worked 50 to 55 hours a week. Working conditions on these farms are generally considered to be better than those on dairy farms.

Major issues affecting working conditions of farm employees include: social insurance, employment standards, housing, social position, and labour relations.

Social Insurance

Permanent agricultural workers are covered by Employment Insurance, Workmen's Compensation, and the Canada Pension Plan. Health insurance is generally paid for by the worker (i.e., contribution on the farmer's part).

Employment Standards

Table III presents a summary by the Ministry of Labour of the current coverage of agricultural workers.

Table III – Current Coverage of Agricultural Workers under Employment Standards Act, February 1974

Standard ¹	Status	Exemptions
Termination of employment	Covered	
Hours of Work	Exempt	Reg.#4 exempts workers from Sections 14(1), 15, 16, 17 and 18 of the Act.
Overtime Pay	Exempt	Reg.#5 exempts workers from Section 21 of the Act.
Minimum Wages	Exempt	Reg.#6 exempts workers from Regulation Sections 6 to 16.
Equal Pay for Equal Work	Covered	
Applications with Pay	Exempt	Reg.#18 exempts workers from Sections 27, 28, 29, 30 and 31 of the Act.
Age Protection	Covered	
Liability to Keep Records	Covered	

Standard applies only if employer employs 25 or more persons.

At present, the Ministry of Labour is examining the feasibility of establishing employment standards in agriculture. Its main task is to identify standards of employment that could be applied to the employment of farm workers and adapted to the special conditions of the farm industry.

The question of hours of work ranks high on dairy farms, though the same question essentially applies to all livestock farms. The prevailing 365-days-a-year labour requirement indeed poses a major problem that must be resolved if livestock production is to continue. Holidays and shorter hours are going to be necessities for both farming families and their employees. As well, these changes in working habits will necessitate further mechanization, improvements in technology, and greater availability of "fill-in" workers.

Housing

Housing conditions for farm workers vary considerably: some workers have obtained houses on the farm, some live in a room provided in the farm house, while others commute from nearby villages to their workplace.

The Ontario Institute of Agrologists in its statement on farm labour, says of the housing conditions:

"For the full-time worker, it is commonly necessary to live on the farm which, in turn, means housing must be provided. For the married worker, this requires a separate house. While some farms are now providing excellent housing, many still leave much to be desired.

"The case of the unmarried full-time worker is often worse, as he will not be provided with a house and will get whatever accommodation is available after the farmer and his family are comfortable."

In general, the costs and risks of providing adequate farm accommodation pose an expensive proposition for the farmer. For example:

- house construction is extremely costly;
- negotiating a loan to pay for such accommodation seriously reduces the farmer's borrowing capacity for farm capital requirements;
- zoning laws often create obstacles, such as the use of mobile homes.

Furthermore, current government-subsidized housing programs are directed towards urban communities. Farm organizations thus claim that some form of assistance (to construct low-cost housing for permanent farm workers) is

required from government bodies and the Central Mortgage and Housing Corporation.

The Social Position and Labour Relations

A recent report prepared by the Ontario Institute of Agrologists,³ describes the image of the farm as,

"...a place where the wages are low, the hours are long, the work is heavy and dirty, and the amenities are few. The term 'hired man' conjures up the situation of a worker who is given all the dirty jobs to do, and who is expected to live in whatever accommodation is left over after the farmer and his family are comfortable. Evidence of the relatively low regard in which many still hold the farm worker is the fact that few farmers or farmers' wives want their children to become farm workers or to marry farm workers.

"Many prospective workers have this image, and it deters them from working on the farm. The fact that many farmers still look on the farm worker or 'hired man' as something beneath his family, leads to poor labour relations with workers when they are on such a farm."

In the past, with their accumulated savings and hard work, energetic farm workers had a reasonable chance of eventually starting their own farm. Present high farm prices, costs of machinery, equipment, and other inputs require much more capital than farm labourers can raise. It is quite possible that this lack of upward mobility is an important factor in discouraging able and ambitious people from staying or even starting work on farms as hired labourers.

Proposals have been made by the Canadian Federation of Agriculture that a permanent, skilled farm labourer be given an opportunity to develop some kind of equity stake in the farming enterprise or to develop his own business in association with that of his employer.⁴ An employer's use of profit-sharing schemes could also be a means of giving the employee a direct stake and interest in the farm enterprise.

Seasonal Labour in Ontario Agriculture

Because of the seasonality of agricultural production, there are unavoidable peaks of labour demand in the industry. Moreover, there is a need for workers to be readily available on short notice, depending on weather and harvesting conditions. These employees cannot look to such seasonal work as their only source of livelihood. Thus, there is a special need to

devise ways and means of meeting these seasonal labour demands.

It is estimated that, of the total of 60,000 to 65,000 seasonal workers employed during the 1973 peak period, the majority were employed from six to eight weeks in harvesting tobacco and tomatoes in southwestern Ontario.

Present regulations allow for a maximum \$250 in earnings, or 25 days' work, before it is necessary for employers to issue T-4 slips or make deductions for Unemployment Insurance and the Canada Pension Plan. Because of these regulations, Statistics Canada data give only an approximate picture of the situation, since it is assumed that many growers and casual workers may simply not report these earnings in order to avoid taxes, deductions, or official enquiries about their status.

these reports give only an approximation of the extent of agricultural labour shortages. Table IV shows further that vacancies are quickly filled during the peak months.

Despite the increasing difficulties of obtaining Canadian seasonal workers (especially by farmers with a reputation for poor employee relations) there is little evidence to show that substantial losses of crops have resulted from labour shortages. However, farmers and farm labour experts are concerned about the distinct possibility that agricultural labour shortages could become increasingly serious in the future.

Earnings and Working Conditions of Tobacco and Tomato Workers

There are no comprehensive and reliable data available on the earnings and working conditions

However, regardless of the time it takes, pay is \$20 per kiln, plus room and board. In addition, a bonus of \$2 per kiln is generally paid to those who stay until the harvest is completed. Assuming 45 days of tobacco harvesting, a tobacco worker can earn from \$900 to \$1,200 during the season (i.e., \$20 to \$27 per day).

Tomato pickers are paid 25¢ to 30¢ per 35-lb. hamper. Average daily earnings are \$1.25 to \$1.50, plus room and board. Accommodation is usually provided by the grower. During the six to eight weeks of tomato harvest, workers may earn from \$800 to \$1,000. According to the pamphlet *Work in Ontario's Tomato Harvest*, published by the Ontario Federal-Provincial Agricultural Manpower Committee, tomato picking,

"requires some endurance and ability to work in a stooped position which is hard on the back and knees. Workers must be able to endure exposure to the weather, particularly the summer heat. Since the harvest period is of relatively short duration, accompanied by the danger from frost, everyone works long hours to take advantage of favourable weather. Workers in good physical condition are required."

Sources of Seasonal Agricultural Workers

Because of the lack of reliable statistics, it is difficult to estimate the number and sources of seasonal workers in Ontario agriculture. On the basis of information received from Manpower officers, agricultural representatives, and agricultural organizations, the following picture emerges.

In 1973, of the estimated 60,000 to 65,000 seasonal workers employed during the peak period, some 45,000 workers were residents of southern Ontario. The balance is made up of,

2,500	Caribbean workers
1,200	Foreign students
6,000	Migrant workers from Quebec and the Maritimes
4,000	Seasonal workers from other parts of Ontario
2,000-3,000	Other foreigners and illegal immigrants

Caribbean Workers in Ontario

The Caribbean Seasonal Workers Program was initiated in 1966 with the purpose of alleviating seasonal labour shortages in Ontario's agriculture industry. In that year, 264 seasonal Caribbean workers were granted temporary en-

Table IV – Agricultural Vacancies, Ontario, 1973

Month	Vacancies Reported Beginning of the Month	% of Total	Vacancies Reported During the Month	% of Total	Vacancies Reported at End of Month	% of Total
January	253	1.3	398	1.1	227	1.5
February	251	1.2	494	1.4	322	2.1
March	391	1.9	1,325	3.8	916	5.9
April	1,243	6.2	1,563	4.4	1,084	7.0
May	1,766	8.7	2,313	6.6	1,304	8.5
June	1,960	9.7	5,705	16.2	1,789	11.6
July	4,041	20.0	6,596	18.7	4,883	31.7
August	5,579	27.6	10,499	29.7	2,662	17.3
September	2,739	13.5	4,466	12.7	1,162	7.5
October	1,162	5.8	1,178	3.3	554	3.6
November	554	2.7	406	1.1	277	1.8
December	283	1.4	350	1.0	233	1.5
TOTAL	20,222	100.0	35,293	100.0	15,413	100.0

Source: Department of Manpower and Immigration, Vacancy Reports by Industries (#751).

Shortage of Seasonal Workers

Increased urbanization, higher wages, and more agreeable working conditions offered in the non-agricultural sector all contribute to the growing costs and declining supply of seasonal workers both from Ontario and from other provinces. Table IV shows that in 1973 the agricultural vacancies, as reported to the local Manpower offices, clustered around the months between April and October, with August recording the highest number. However, the growing problem of labour shortages is difficult to quantify as not all agricultural vacancies are reported to the Manpower offices. As a result,

of seasonal workers in agriculture. However, tobacco and tomato harvesting requires the most temporary farm workers and, therefore, the earnings and working conditions of these harvesters can be considered, to some extent, as indicative of the situation prevailing for seasonal workers.

Tobacco harvesting is primarily piece work. The unit of production, commonly referred to as a kiln, usually includes removing cured tobacco from a kiln (a tobacco-curing barn) and priming sufficient tobacco to fill a standard kiln. This can usually be accomplished within eight to 10 hours by experienced workers.

Table V – Employment of Caribbean Workers in Ontario Agriculture, 1972-1973

Category	1973		1972	
	No. of Workers	% of Total	No. of Workers	% of Total
Apple Harvest	769	25.2	622	40.6
Other Fruits Harvest	272	8.9	136	8.9
Fresh Vegetables	108	3.6	80	5.2
Other Vegetables	431	14.1	76	5.0
Vegetable Canning	644	21.1	388	25.4
Fruit Canning	32	1.0	31	2.0
Tobacco	502	16.5	91	5.9
Roseries	167	5.5	—	—
Mushrooms	19	0.6	—	—
Poultry	6	0.2	—	—
Paragus	98	3.3	97	6.3
Tobacco and other crops	—	—	10	0.7
TOTAL	3,048	100.0	1,531	100.0

Source: Department of Manpower and Immigration, General Report of Agricultural Activities, 1974, Agricultural Co-ordinating Unit, Ontario Region.

permits so that they could assist in the harvesting of fruits and vegetables as well as in canning operations in Ontario, from May 1 to November 15. In 1973, 3,048 seasonal workers entered Ontario under this program and some increase is expected for 1974. The duration of the temporary entry permit is from six weeks to eight months. In 1973, the guaranteed hourly rate was \$1.80, the minimum guaranteed weekly wage was \$72, and the employer was required to pay half of the worker's airfare. The provision and supervision of proper housing and health care were also guaranteed under this program. Table V indicates the various sectors of agriculture in which the Caribbean workers were employed in 1972 and 1973.

Foreign Students

Under student-exchange programs, such as the Federal Foreign Students Overseas Program, some 1,200 European students worked an average of eight weeks on Ontario's tobacco farms. Earnings were \$20 a day, plus a \$2-a-day bonus if they stayed until the end of the harvest. Room and board was provided free.

Seasonal Workers from other Provinces

Traditionally, the Maritime provinces and Quebec provided an abundant supply of seasonal workers for Ontario's tobacco, vegetable, and

fruit farms. In the last few years, the number of seasonal workers from the Maritimes has declined sharply because of continued economic expansion in these provinces. In 1973, some 140 to 150 workers came from the Maritimes to Ontario farms, compared with 600 in 1965.

According to the officials of Canada's Department of Manpower and Immigration, last year Quebec provided some 5,000 to 6,000 seasonal workers for Ontario farms. However, this source of labour supply is declining since both employment opportunities in Quebec (lumber, construction, canning, and manufacturing) are steadily improving.

Local Workers

There is no evidence that Ontario has an indigenous "hard core" migrant agricultural labour force comparable to that of California. It appears that there is only a small (though unspecified) number of families in Ontario whose livelihood depends entirely or primarily on seasonal agricultural work. In most instances, such work provides an additional source of income for families living in the major tobacco, fruit, and vegetable farming areas. Housewives, students, moonlighting shift workers from industry, unemployed persons, and laid-off industrial workers are engaged for varying periods in seasonal farm work, especially during planting and harvesting.

Seasonal Workers from other Parts of the Province

In 1973, some 3,500 to 4,000 seasonal workers from other parts of Ontario, mainly the east and north, were employed in the labour-intensive agricultural areas of southwestern Ontario. Despite the available, under-utilized manpower on the Indian reserves, no more than 200 Indians were hired in Ontario agriculture.

Illegal Immigrants

In August 1973, the Canada Department of Manpower and Immigration released a report⁵ which caused considerable controversy and extensive coverage in the media. The report found the following:

- housing, earnings, and working conditions for both Canadian and foreign seasonal workers on many farms were inadequate, except for those under the Caribbean Seasonal Workers Program;
- some growers employed both Canadian and foreign child labour and also employed on occasions adults unfit for heavy work;
- a great number of workers, mainly from Mexico and Portugal, were brought in illegally by brokers;
- using the work permit issued to the father, all members of the family were working illegally.

In September 1973, another report⁶ was released by the Canada Department of Manpower and Immigration. Field teams visited 629 farms in southwestern Ontario and reported the following:

- Of the 471 foreign-based workers interviewed by the field teams, 145, or 30.8 per cent, were working illegally.
- In many cases where accommodation was provided by the farmer, "it was marginal" but, "in most cases equivalent to what they (the workers) have at home".
- The field teams, "discovered no cases of minors (under 18) who were working illegally on farms on their own. In every case they were accompanied by their parents".
- The number of children accompanying workers was 140 and 88 of them were working on the farm. However, the report points out that matters such as the, "proper or improper use of children to pick crop — are subjective to a large degree".
- With respect to earnings, it was noted that, in many cases, the farmer held back a per-

centage of the worker's pay to induce the latter to finish the season. This practice was one which was not condoned by many other farmers.

According to farm organizations the cases of abuse and mistreatment of migrant workers are regrettable and inexcusable when they occur, but they are, by no means, widespread let alone representative of the general agricultural labour situation prevailing in the Province.

Earnings, living and working conditions of migrant workers still provide material for occasional press editorials and public concern. The recently established agreement between Canada and Mexico is aimed at improving the situation of Mexicans who come to Canada as agricultural workers for a limited time period. Under this agreement, workers will be paid minimum guaranteed wages, together with partial transportation and accommodation costs.

IV – FARM MECHANIZATION

Growing scarcity and rising costs of agricultural labour have given further impetus to farm mechanization. In 1973, several mechanical harvesters were used on the tobacco farms of southern Ontario and, generally speaking, satisfaction has been expressed by the farmers about their performance. Mechanization of tomato harvesting also showed some advancement last year. Six harvesters used in Essex and Kent counties performed reasonably well. Plant breeders are currently engaged in research designed to produce new breeds of tomatoes and tobacco more suitable for mechanical harvesting, although it is expected to take several years before practical results are obtained.

Because of the combined effects of labour and fuel shortages (and high costs), an increasing number of Ontario farmers are using deep cultivators in soil preparation. This method is considerably quicker and requires less power than traditional ploughing. Furthermore, farmers using 80 to 100 HP tractors prepare the soil, apply fertilizer, and sow the seeds in a single process. The combination of different work phases reduces both labour and fuel requirements.

The increasing costs of farm equipment, fuel shortages and delays in delivery as well as recurring scarcities of spare parts, result in higher capital outlays, more costly operating expenses, and introduce a greater degree of uncertainty in farm operations. The handling and maintenance

of complex and expensive machinery requires considerable technical expertise and responsibility; this in turn creates a demand for better qualified and higher paid agricultural workers.

It follows from the above considerations that further farm mechanization will undoubtedly reduce labour requirements, but not necessarily labour costs, operating costs, or depreciation expenditures. The Research Branch of Agriculture Canada, is currently working on forage research and systems analyses, on a multi-disciplinary basis. This research covers various alternatives for harvesting, handling, and storing forage. Crop-production specialists provide crop input, while forage-utilization scientists evaluate system output by laboratory analyses and feeding trials for beef cattle and sheep. Engineering input for mechanization and structure considerations is supplied by Agriculture Canada's Engineering Research Service in Ottawa. The multi-disciplinary systems approach in agricultural research, if widely used, will be instrumental in reducing the need for farm labour.

The efficiency and usefulness of the research would be advanced by finding a means of coordinating the research activities of government agencies and of farm-machinery companies or, at least, by establishing an exchange of ideas about selected issues of major importance.

V – INSTITUTIONAL ARRANGEMENTS

Ministry of Agriculture and Food

The Ontario Ministry of Agriculture and Food, until recently, was primarily concerned with the referral and placement of permanent farm labour. The Manpower Services Branch of the Ministry applies various methods to improve this operation. In 1973, for example, the Ministry recruited and placed 60 to 70 trained farm workers (mainly dairy herdsmen) from Holland, Ireland, and the United Kingdom. Similarly, the Ministry intends to enlarge both the scope and duration of government-sponsored training programs for farm workers. Also, in cooperation with the Canada Department of Manpower and Immigration, the Ministry is carrying out the Agriculture for Young Canadians program. This program is designed to attract young Canadians, primarily students under 18 years of age, to agricultural work during the summer vacation period and to possible future careers in agriculture. Last year, some 20 to 25 students participated in this program, working on dairy farms and receiving subsidized wages.

Canada Department of Manpower and Immigration

The main functions of the Canada Manpower Centres, to some extent concerned with seasonal workers, involve recruiting and directing agricultural workers to farmers, notifying other areas of manpower requirements, arranging for government-assisted transfers of workers within and between provinces, administering the Caribbean Seasonal Workers Program, and collecting statistical data on farm labour.

Federal-Provincial Agricultural Manpower Agreement

Federal and provincial government involvement is regulated by the annually negotiated Federal-Provincial Agricultural Manpower Agreement. This Agreement specifies the continuing programs of the Department of Manpower and Immigration and the Ministry of Agriculture and Food, and determines the budget and cost-sharing arrangement between the federal and provincial governments. Under the Agreement, grants are available for the construction and/or renovation of housing for seasonal workers. Funds are also allocated for the intra- and inter-provincial transfers of agricultural labourers.

Farm Labour Pools and Agricultural Manpower Boards

A new feature of the 1973-74 Agreement is the creation of local Agricultural Manpower Boards and their operational arm, the Canada Farm Labour Pools. Both the federal and the provincial governments have been actively promoting the concept of these new agencies and the Farm Labour Pools created to date have been well received by farmers. Their functions include:

- identification of demand for seasonal, relief and permanent workers and recruitment of local labour resources;
- development of guidelines for wages, conditions of work, accommodation adapted to the locality, and commodities concerned;
- contracting with farmers for supply of workers and arranging for their accommodation and transportation;
- billing farmers for workers' wages and other employer costs, paying wages on behalf of farmers to workers (excluding permanent workers) and making statutory deduction (U.I., C.P.P., etc.).

I — CONCLUSIONS

There is strong evidence that both permanent and seasonal agricultural workers are in short supply in Ontario. This shortage could reach critical levels in the future. As previously mentioned, because of insufficient reliable data, it is difficult to assess accurately the problems and implications of the present position and future prospects for farm labour in Ontario.

Nevertheless, it would appear that farm labour problems can be alleviated significantly through increased mechanization, continued immigration of farm workers, improved working and living conditions, farm income stabilization, and better employer-employee relations.

Mechanization and Immigration

Observed trends indicate that mechanization in agriculture will continue and that the recently introduced systems approach in agricultural engineering research will be of immense value in reducing labour requirements and in improving working conditions on Ontario farms. Similarly, the active recruitment of qualified permanent workers from abroad and the increasing number of seasonal workers from countries with an abundant labour supply will also ease labour shortages.

Developments in farm mechanization will reduce, but not eliminate, demand for labour in agriculture. Furthermore, because of the increasing sophistication and specialization of many farm operations, there will be an increasing demand for higher-trained workers, which in turn implies higher wages and better working conditions.

Improved Working and Living Conditions

One of the most far-reaching measures that would contribute to a vigorous agricultural sector in Ontario is the motivation of young, capable people to take up farm work as a career. This can be attained by upgrading existing social and living conditions and enlarging personal development opportunities. However, it seems apparent that the pre-condition for any improvement in earnings and working conditions is that agricultural production must yield a level of return that will provide adequate incomes for farmers.

Farm Income Stabilization

The low returns which farmers have received in the past have forced most farmers into either doing without hired workers (at the cost of excessively long hours of work on their part) or

employing workers at low pay with long hours of work. Farm net income in Ontario in the past two years has, however, made good gains. In 1973, it rose by 50 per cent over the previous year, and the outlook for 1974 is encouraging.

Agricultural economists and population experts predict that high demand for agricultural products will continue in the foreseeable future and, therefore, prospects for agriculture are favourable. However, it is also recognized by farm experts, government agencies and farm organizations that comprehensive policies are needed by federal and provincial governments regarding future income adequacy and security in the agriculture industry.

Improved Employer-Employee Relations

Although adequate and secure farm incomes are the pre-condition of better earnings and working conditions for farm labourers, better employer-employee relations are also important. Farm organizations recognize this problem and propose to initiate training programs on labour relations. Farm Labour Pools, which deal with the planning and coordination of labour supply, demand, and various other aspects of farm labour, could turn out to be useful instruments for educating both farm workers and farmers.

¹ Statistics Canada, *Agriculture Ontario, 1971*.
² Department of Manpower and Immigration,
Ontario Regional Office.

³ *Farm Labour in Ontario*. A Statement by the
Ontario Institute of Agrologists, 1974.

⁴ Canadian Federation of Agriculture, Annual
Meeting, February 14-18, 1974.

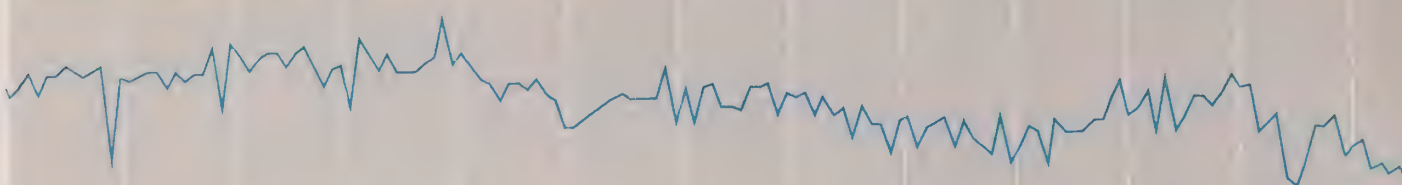
⁵ *The Seasonal Farm Labour Situation in South-
western Ontario*.

⁶ *Southwestern Ontario Farm Investigation*.

Selected Economic Indicators

Leading Indicators

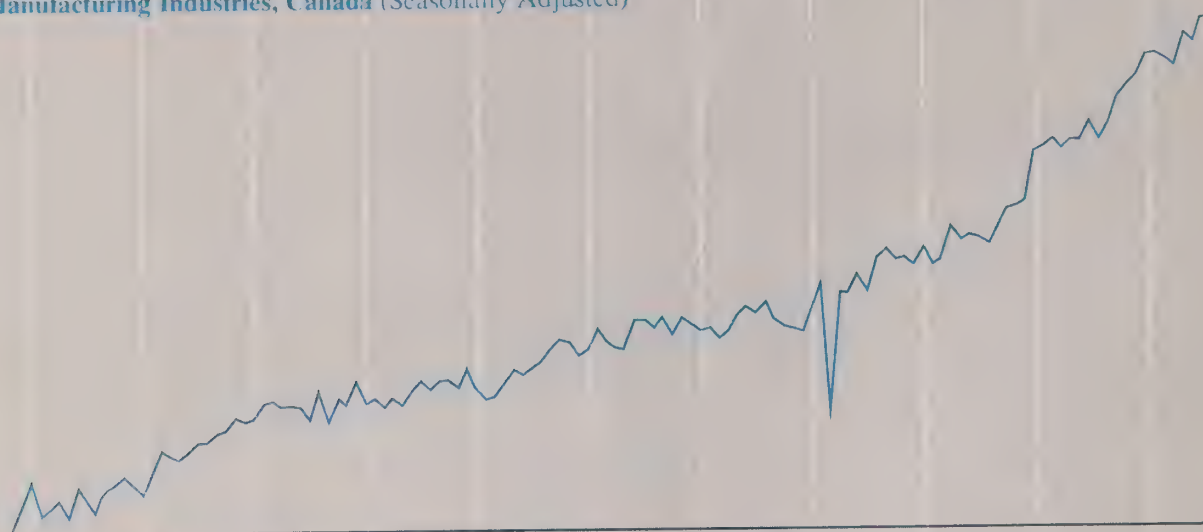
Average Weekly Hours Worked in Manufacturing, Ontario (Seasonally Adjusted)



Hours
_42
_41
_40
_39

Scale A

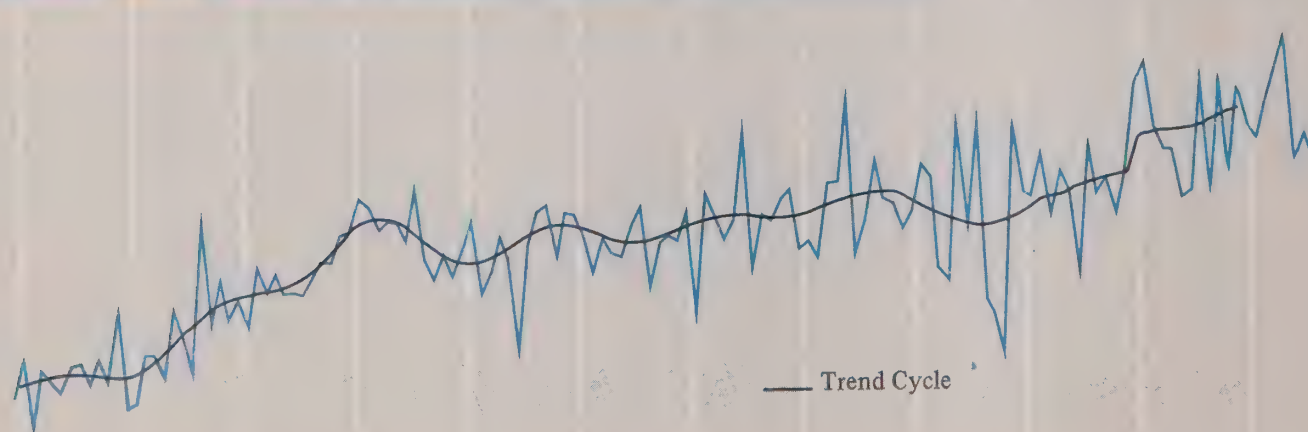
New Orders in Manufacturing Industries, Canada (Seasonally Adjusted)



\$ Billion
_7.0
_6.5
_6.0
_5.5
_5.0
_4.5
_4.0
_3.5
_3.0

Scale L1

Building Permits Issued in Ontario, Non Residential Construction (Seasonally Adjusted)



\$ Million
_200
_160
_120
_100
_80
_60
_40

Scale L2

Housing Starts in Centres of 10,000 Population and over, Ontario (Seasonally Adjusted at Annual Rates)



Thousand
_100
_90
_80
_70
_60
_50
_40

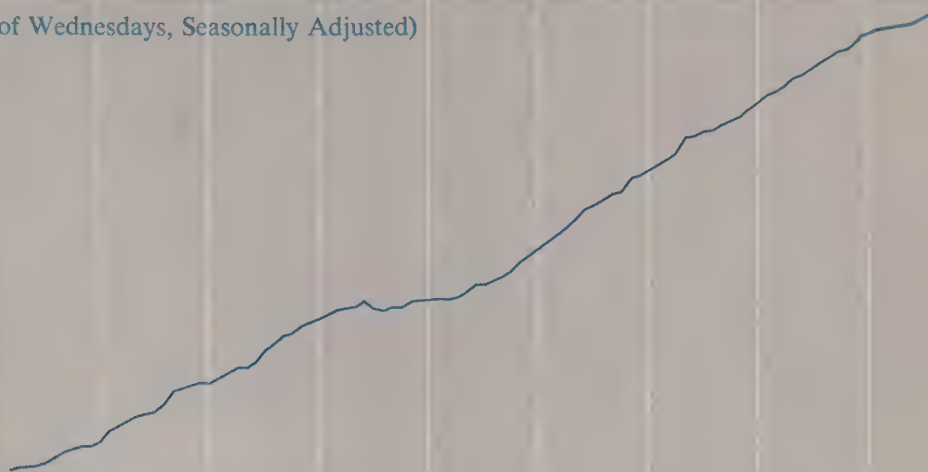
— Monthly
— Quarterly

1962 1963 1964 1965 1966 1967 1968 1969 1970 1971 1972 1973 1974

Leading Indicators

Total Money Supply, Canada (Average of Wednesdays, Seasonally Adjusted)

\$ Billion
Scale L1
_45
_40
_35
_30
_25



Toronto Stock Exchange Industrial Index (1956 = 100, Not Seasonally Adjusted)

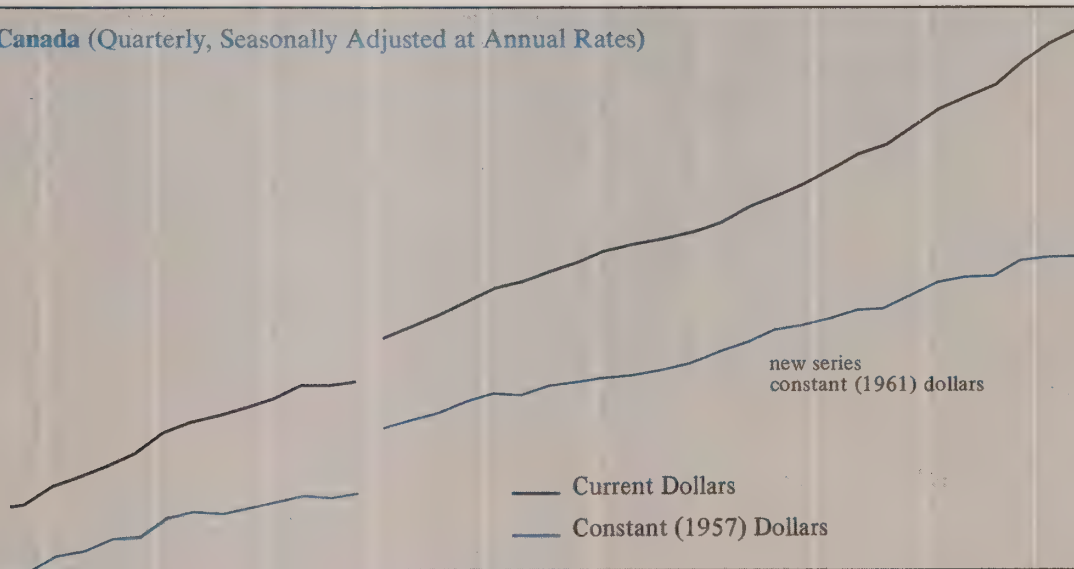
Index
Scale L2
_240
_220
_200
_180
_160
_140
_120



Coincidental and Lagging Indicators

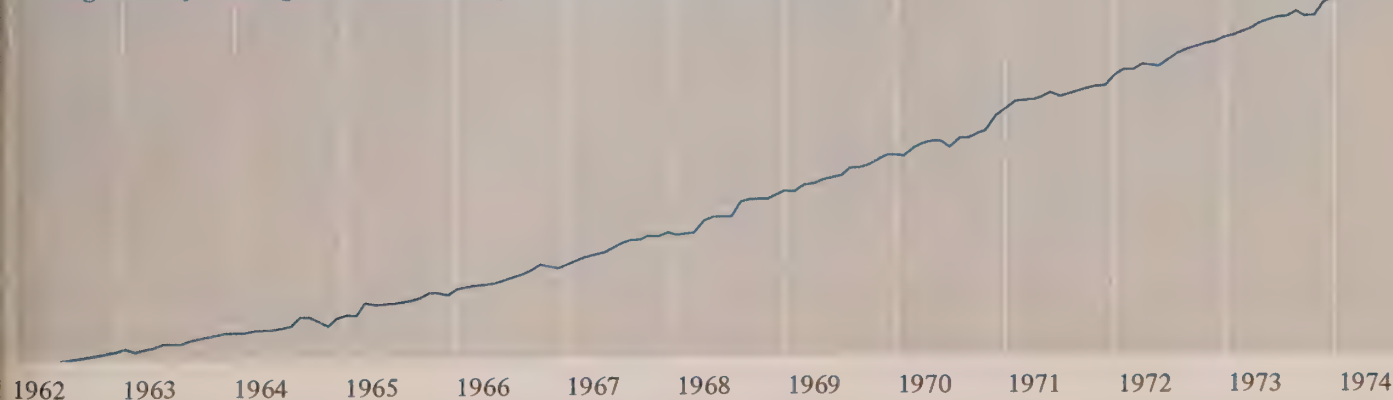
Gross National Product, Canada (Quarterly, Seasonally Adjusted at Annual Rates)

\$ Billion
Scale L1
_120
_110
_100
_90
_80
_70
_60
_50



Average Hourly Earnings in Manufacturing, Ontario (Seasonally Adjusted)

Dollars
Scale L1
_4.00
_3.50
_3.00
_2.50



Coincidental and Lagging Indicators



Economic Indicators

Seasonally Adjusted

	1973					1974									
	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	
Leading Indicators															
Average Weekly Hours Worked in Manufacturing	38.9	39.2	39.9	39.9	39.7	40.0	39.3	39.5	39.7	39.3	39.3	39.0	39.1	38.8	
New Orders in Manufacturing Industries ^c	5,688.5	5,560.6	5,790.2	5,980.4	6,163.7	6,415.2	6,486.9	6,521.0	6,484.7	6,441.7	6,844.1	6,708.1	7,018.3	7,048.2	
Building Permits Issued in Ontario, Non-Residential Construction	121.1	157.5	119.2	164.0	131.4	162.8	137.1	128.7	150.7	148.3	198.9	119.2	133.2	118.9	
Urban Housing Starts (Annual Rate)	123,900	76,900	91,500	77,600	76,200	88,600	118,100	106,000	111,500	93,600	76,900	97,600	59,300	60,100	
Money Supply ^c	46,779	47,346	47,898	48,619	48,888	50,052	50,797	51,570	51,949	52,576	52,813	53,278	54,749	55,860	
T.S.E. Industrial Index ^u	219.3	215.2	225.3	237.4	211.4	213.7	215.0	222.9	215.3	198.2	187.5	183.4	184.9	167.0	
Business Failures ^u	80	60	99	93	86	89	90	100	73	104	95	78	79	73	
Business Failures — Liabilities ^u	4.9	3.5	8.9	11.7	6.1	4.5	9.9	5.4	4.8	4.7	33.7	4.1	9.9	4.5	
Coincidental and Lagging Indicators															
Gross National Product ^c (Annual Rate)	120,580					125,908					132,228				137,444
Average Hourly Earning in Manufacturing	4.08	4.03	4.13	4.23	4.10	4.21	4.25	4.28	4.32	4.37	4.42	4.39	4.54	4.60	
3-Month Treasury Bill Rate ^{c,u}	5.74	6.03	6.41	6.51	6.47	6.38	6.28	6.11	6.28	7.13	8.24	8.68	8.92	9.09	
Cheques Cashed in Clearing Centres ¹	10,669	10,375	10,273	10,720	11,354	11,027	11,928	11,281	11,667	11,775	13,328	12,211	12,173	12,458	
Retail Trade	1,224	1,221	1,232	1,228	1,243	1,240	1,272	1,336	1,303	1,312	1,395	1,381	1,402	1,441	
Labour Force	3,483	3,518	3,492	3,558	3,567	3,579	3,598	3,616	3,628	3,639	3,662	3,646	3,667	3,742	
Employed	3,349	3,375	3,335	3,404	3,431	3,432	3,449	3,461	3,475	3,508	3,520	3,515	3,520	3,579	
Unemployed	134	143	157	154	136	147	149	155	153	131	142	131	147	163	
Unemployed as % of Labour Force	3.8	4.1	4.5	4.3	3.8	4.1	4.1	4.3	4.2	3.6	3.9	3.6	4.0	4.4	
Wages and Salaries	2,133	2,158	2,207	2,246	2,263	2,289	2,332	2,330	2,372	2,378	2,429	2,470	2,487	2,493	
Index of Industrial Employment	142.8	139.4	142.1	144.7	143.0	143.7	144.4	146.3	146.7	146.5	146.6	147.9	149.6	148.8	
Index of Industrial Production ^c															
Total Manufacturing ^c	214.9	208.7	212.7	217.0	218.1	217.7	223.0	224.7	226.1	223.8	222.3	222.6	220.2	220.4	
Non-Durables ^c	211.6	203.9	208.1	212.9	213.6	213.6	218.7	218.8	224.1	221.4	219.6	219.4	217.6	218.6	
Durables ^c	184.6	176.5	179.4	182.8	186.8	186.4	188.9	190.8	196.2	194.2	191.3	193.4	190.3	189.9	
Mining ^c	245.8	238.7	244.4	250.9	247.5	248.1	256.3	254.3	259.4	255.9	255.5	252.4	252.1	254.8	
Electric Power and Gas Utilities ^c	206.0	205.3	210.6	217.3	216.8	216.0	202.0	212.2	211.6	212.9	209.3	212.9	204.3	201.0	
Primary Energy Demand (Annual Rate)	256.9	254.4	255.2	252.0	258.6	254.7	258.7	262.2	266.8	262.2	266.3	264.5	267.7	266.5	
Exports (including re-exports) ^c	79.79	81.60	79.85	79.23	79.97	78.54	80.27	81.20	80.99	80.95	83.33	81.74	85.51	84.59	
Imports ^c	2,134	1,986	2,133	2,246	2,367	2,237	2,438	2,440	2,642	2,402	2,713	2,583	2,688	2,848	
	1,949	1,927	1,995	2,080	2,153	2,199	2,223	2,397	2,531	2,251	2,527	2,652	2,682	2,833	
Unclassified Indicators															
Foreign Exchange Reserves ^{c,u}	4,939	4,743	4,690	4,848	4,811	4,854	4,939	5,282	5,192	5,317	5,308	5,205	5,100	4,929	
Industrial Materials Price Index ^{c,u}	394.7	420.3	407.7	419.9	455.4	463.9	466.0	476.9	484.5	491.7	490.1	491.8	497.9		
Consumer Price Index ^{c,u}	151.0	153.0	153.9	154.3	155.5	156.4	157.6	159.2	160.8	161.9	164.6	166.7	168.0	169.6	
Toronto ^u	144.6	146.2	146.8	147.0	148.0	148.5	150.2	152.0	153.1	154.2	157.4	159.5	160.2	161.8	
Ottawa ^u	146.7	148.9	149.5	150.5	152.3	153.4	154.5	155.9	157.3	158.4	160.0	162.1	163.0	164.4	
Thunder Bay ^u	115.5	117.6	119.2	117.9	118.5	119.0	119.6	120.9	122.0	123.6	125.6	127.2	128.2	129.8	
Purchasing Power of 1961 Consumer Dollars ^{c,u}	0.66	0.65	0.65	0.65	0.64	0.64	0.63	0.63	0.62	0.62	0.61	0.60	0.60	0.59	

^cStatistics for Canada.

^uNot seasonally adjusted.

¹Ontario less Toronto.



